

Indicator thematic area
General Characteristics
Indicator group
Urban center Name
Attribute ID
GC_UCN_MAI_XXXX
Indicator Name
Urban center Main Name
Units
Dimensionless
Data Source
Open Street Maps
GISCO
WUP 2018
Indicator description
Name of the main city inside the urban center.
Methodology
The urban centres are named using an algorithm that automatically queries the GISCO, the full OpenStreetMap datasets and WUP 2018 (extended unpublished version, with point locations corrected through geocoding and reverse geocoding).
Methodology Short
Geoencoding
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
General Characteristics
Indicator group
Urban center Name
Attribute ID
GC_UCN_LIS_XXXX
Indicator Name
Urban center List Name
Units
Dimensionless
Data Source
Open Street Maps
GISCO
WUP 2018
Indicator description
List of names of the all cities inside the urban center.
Methodology
The urban centres are named using an algorithm that automatically queries the GISCO, the full OpenStreetMap datasets and WUP 2018 (extended unpublished version, with point locations corrected through geocoding and reverse geocoding).
Methodology Short
Geoencoding
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
General Characteristics
Indicator group
Country Name
Attribute ID
GC_CNT_GAD_XXXX
Indicator Name
Country Name
Units
Dimensionless
Data Source
GADM version 4.1, released on 16 July 2022 https://gadm.org/data.html
Indicator description
Country named based on GADM dataset
Methodology
Spatial join of the urban centers and the GADM country layer adapted for GHSL.
Methodology Short
Spatial Join
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
General Characteristics
Indicator group
Country Name
Attribute ID
GC_CNT_UNN_XXXX
Indicator Name
Country Name
Units
Dimensionless
Data Source
World Population Prospects 2022 (WPP2022)
Indicator description
Country named based on WPP2022.
Methodology
Merging GADM countries according to WPP2022 notes.
Methodology Short
Spatial join
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
General Characteristics
Indicator group
Area
Attribute ID
GC_UCA_KM2_XXXX
Indicator Name
Urban Centre Area
Units
Km ²
Data Source
Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba , doi: 10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA
Indicator description
Urban Centre Area
Methodology
Calculate area (geometry) of the urban centre.
Methodology Short
Area
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
General Characteristics
Indicator group
Population
Attribute ID
GC_POP_TOT_XXXX
Indicator Name
Total Population in the Urban Centre
Units
Number of inhabitants
Data Source
Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE
Indicator description
Total population allocated inside of the UC in number of inhabitants.
Methodology
Zonal sum of the GHS-POP R2023A layer pixel values inside the urban centre.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
General Characteristics
Indicator group
Development
Attribute ID
GC_DEV_WIG_XXXX
Indicator Name
World Bank Income Group
Units
Categorical
Data Source
The World Bank https://datahelpdesk.worldbank.org/knowledgebase/articles/906519
Indicator description
The World Bank income group classification provides a complete list of economies classified by income, region, and World Bank lending status. This table is updated to year 2022.
Methodology
Join by attribute (by country).
Methodology Short
Join by attribute
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
General Characteristics
Indicator group
Development
Attribute ID
GC_DEV_USR_XXXX
Indicator Name
UN SDG Region
Units
Categorical
Data Source
UN https://unstats.un.org/sdgs/indicators/regional-groups/
Indicator description
Country grouping in geographic regions based on the 2016 Sustainable Development Goals Report and the progress reports on the Millennium Development Goals.
Methodology
Join by attribute (by country)
Methodology Short
Join by attribute
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
General Characteristics
Indicator group
Plausibility
Attribute ID
GC_PLS_SCR_XXXX
Indicator Name
Plausibility
Units
Categorical
Data Source
Melchiorri Michele; Marí Rivero Inés, Florio Pietro, Uhl Johannes, Krasnodębska Katarzyna, Pesaresi Martino, Politis Pangliotis, Schiavina Marcello, Maffenini Luca, Tommasi Pierpaolo, Carioli Alessandra, Ehrlich Daniele, Crippa Monica, Guizzardi Diego, Pisoni Enrico, Bellis Claudio, Sulis Patrizia, Oom Duarte, Branco Alfredo, Kemper Thomas. Stats in the City – the GHSL Urban Centre Database 2025. Publications Office of the European Union, Luxembourg, 2024. ISBN 978-92-68-21609-5, doi: 10.2760/3046391, JRC139768
Indicator description
The score indicates the plausibility/quality of the modelled urban centre.
Methodology
A plausibility test model was developed using a data-driven decision ensemble methodology. This ensemble is supported by univariate linear regression, stratified by World Bank Income Group (WB Income Group) and by year. The predictors are the total sum per UC of modelled population grids and land use grids, which are independently produced with respect to the Global Human Settlement Population (GHS-POP R2023A) and the Global Human Settlement Model (GHS-SMOD R2023A)
Methodology Short
Data-driven decision
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
General Characteristics
Indicator group
Urban centre birth
Attribute ID
GC_UCB_YOB_XXXX
Indicator Name
Year of Birth
Units
year
Data Source
<p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC)</p> <p>PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p> <p>European Commission, and Statistical Office of the European Union, 2021 Applying the Degree of Urbanisation — A methodological manual to define cities, towns and rural areas for international comparisons — 2021 edition. Publications Office of the European Union, 2021; ISBN 978-92-76-20306-3 10.2785/706535</p>
Indicator description
Indicates the year in the multitemporal series GHS-SMOD R2023A, the cells reach the conditions to be classified as urban centre.
Methodology
The methodology to classify the urban centres is described in “Applying the Degree of Urbanisation — A methodological manual to define cities, towns and rural areas for international comparisons —”.
Methodology Short
Modelled
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
The DEGURBA model considers data only from 1975 to 2030, cities born in 1975 should be considered as born in 1975 or earlier, and cities death in 2030 should be considered as death on 2030 or later

Indicator thematic area
General Characteristics
Indicator group
Urban centre death
Attribute ID
GC_UCB_YOD_XXXX
Indicator Name
Year of Death
Units
year
Data Source
<p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC)</p> <p>PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p> <p>European Commission, and Statistical Office of the European Union, 2021 Applying the Degree of Urbanisation — A methodological manual to define cities, towns and rural areas for international comparisons — 2021 edition. Publications Office of the European Union, 2021; ISBN 978-92-76-20306-3 10.2785/706535</p>
Indicator description
Indicates whether an urban centre is projected to be a urban centre in 2030 or 'dies' (doesn't reach the conditions to be a urban centre) in 2030.
Methodology
The methodology to classify the urban centres is described in "Applying the Degree of Urbanisation — A methodological manual to define cities, towns and rural areas for international comparisons —".
Methodology Short
Modelled
Temporal Coverage
2025, 2030
Uncertainties & Best practices
The DEGURBA model considers data only from 1975 to 2030, cities born in 1975 should be considered as born in 1975 or earlier, and cities death in 2030 should be considered as death on 2030 or later

Indicator thematic area
General Characteristics
Indicator group
Urban centre municipality
Attribute ID
GC_UCM_CAP_XXXX
Indicator Name
Capital city
Units
Boolean (yes/no)
Data Source
Wikipedia
GoogleMaps
Indicator description
Indicates whether an urban centre is the capital city.
Methodology
Nation capitals are flagged by retrieving the information about name on Wikipedia.org and location with Geocoding on GoogleMaps. When information retrieved provide multiple capitals: (1) 'de jure' is preferred over 'de facto'; 'legislative' is preferred over others (e.g. 'royal', 'administrative', 'executive', etc.). Value 0 indicates no capital city and value 1 indicates Capital City)
Methodology Short
Geocoding
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Population
Attribute ID
GH_POP_TOT_XXXX
Indicator Name
Total Population
Units
Number of inhabitants
Data Source
Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE
Indicator description
Total population allocated inside of the UC in number of inhabitants.
Methodology
Zonal sum of the GHS-POP R2023A layer pixel values inside the urban centre.
Methodology Short
Zonal Statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Population
Attribute ID
GH_POP_CAG_XXXX
Indicator Name
Population Compound Annual Growth Rate
Units
%
Data Source
Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE
Indicator description
Compound annual growth rate of the total population allocated inside of the UC in percentage.
Methodology
$CAGR = \left(\frac{value_{t1}}{value_{t0}} \right)^{1/(t1-t0)} - 1 \times 100$
Methodology Short
Compound annual growth rate
Temporal Coverage
1975-1980, 1980-1985, 1985-1990, 1990-1995, 1995-2000, 2000-2005, 2005-2010, 2010-2015, 2015-2020, 2020-2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up surface
Attribute ID
GH_BUS_TOT_XXXX
Indicator Name
Total Built-up
Units
m ²
Data Source
Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea , doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA
Indicator description
Total built-up area of the UC in square meters
Methodology
Zonal sum of the GHS-BUILT-S R2023A pixel values inside the urban centre.
Methodology Short
Zonal Statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up surface
Attribute ID
GH_BUS_NRE_XXXX
Indicator Name
Non-Residential Built-up
Units
m ²
Data Source
Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea , doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA
Indicator description
Non-residential built-up area of the UC in square meters
Methodology
Zonal sum of the GHS-BUILT-S-NRES R2023A pixel values inside the urban centre.
Methodology Short
Zonal Statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up surface
Attribute ID
GH_BUS_RES_XXXX
Indicator Name
Residential Built-up
Units
m ²
Data Source
Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea , doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA
Indicator description
Residential built-up area of the UC in square meters
Methodology
Subtraction of the non-residential built-up in a urban centre from the total built-up.
Methodology Short
Subtraction
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up per capita
Attribute ID
GH_BPC_TOT_XXXX
Indicator Name
Total built-up per capita
Units
m ² /person
Data Source
Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea , doi: 10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA
Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CF
Indicator description
Total built-up area per capita in the urban centre
Methodology
Total built-up area divided by total population
Methodology Short
Division
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
Values bellow 1 m ² /person and above 600 m ² /person are excluded from the data set.

Indicator thematic area
GHSL
Indicator group
Built-up per capita
Attribute ID
GH_BPC_NRE_XXXX
Indicator Name
Non-residential built-up per capita
Units
m ² /person
Data Source
Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea , doi: 10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA
Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CF
Indicator description
Non-residential built-up area per capita in the urban centre
Methodology
Non-residential built-up area divided by total population
Methodology Short
Division
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
Values above 600 m ² /person are excluded from the data set.

Indicator thematic area
GHSL
Indicator group
Built-up per capita
Attribute ID
GH_BPC_RES_XXXX
Indicator Name
Residential built-up per capita
Units
m ² /person
Data Source
Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea , doi: 10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA
Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CF
Indicator description
Residential built-up area per capita in the urban centre
Methodology
Residential built-up area divided by total population
Methodology Short
Division
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
Values bellow 1 m ² /person and above 600 m ² /person are excluded from the data set.

Indicator thematic area
GHSL
Indicator group
Built-up volume
Attribute ID
GH_BUV_TOT_XXXX
Indicator Name
Total built-up volume
Units
m ³
Data Source
Pesaresi M., Politis P. (2023): GHS-BUILT-V R2023A - GHS built-up volume grids derived from joint assessment of Sentinel2, Landsat, and global DEM data, multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/ab2f107a-03cd-47a3-85e5-139d8ec63283 , doi: 10.2905/AB2F107A-03CD-47A3-85E5-139D8EC63283
Indicator description
Total built-up volume in the urban centre
Methodology
Zonal statistics (sum) of the GHS-BUILT-V R2023A pixel values inside the urban centre.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up volume
Attribute ID
GH_BUV_NRE_XXXX
Indicator Name
Non-residential built-up volume
Units
m ³
Data Source
Pesaresi M., Politis P. (2023): GHS-BUILT-V R2023A - GHS built-up volume grids derived from joint assessment of Sentinel2, Landsat, and global DEM data, multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/ab2f107a-03cd-47a3-85e5-139d8ec63283 , doi: 10.2905/AB2F107A-03CD-47A3-85E5-139D8EC63283
Indicator description
Non-residential built-up volume in the urban centre
Methodology
Zonal statistics (sum) of the GHS-BUILT-V-NRES R2023A pixel values inside the urban centre.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up volume
Attribute ID
GH_BUV_RES_XXXX
Indicator Name
Residential built-up volume
Units
m ³
Data Source
Pesaresi M., Politis P. (2023): GHS-BUILT-V R2023A - GHS built-up volume grids derived from joint assessment of Sentinel2, Landsat, and global DEM data, multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/ab2f107a-03cd-47a3-85e5-139d8ec63283 , doi: 10.2905/AB2F107A-03CD-47A3-85E5-139D8EC63283
Indicator description
Residential built-up volume in the urban centre
Methodology
Subtraction of the non-residential volume from the total volume for each urban centre.
Methodology Short
Subtraction
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up height
Attribute ID
GH_BUH_AVG_XXXX
Indicator Name
Average built-up height
Units
m
Data Source
Pesaresi, M.; Politis, P. (2023): GHS-BUILT-H R2023A - GHS building height, derived from AW3D30, SRTM30, and Sentinel2 composite (2018).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/85005901-3a49-48dd-9d19-6261354f56fe , doi: 10.2905/85005901-3A49-48DD-9D19-6261354F56FE
Indicator description
Average of the values inside the urban centre of the average height of the built surfaces in a 100 m pixel.
Methodology
Zonal statistics (average) of the GHS-BUILT-H R2023A pixel values inside the urban centre.
Methodology Short
Zonal statistics (average)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up height
Attribute ID
GH_BUH_STD_XXXX
Indicator Name
Average built-up height
Units
m
Data Source
Pesaresi, M.; Politis, P. (2023): GHS-BUILT-H R2023A - GHS building height, derived from AW3D30, SRTM30, and Sentinel2 composite (2018).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/85005901-3a49-48dd-9d19-6261354f56fe , doi: 10.2905/85005901-3A49-48DD-9D19-6261354F56FE
Indicator description
Standard deviation of the values inside the urban centre of the average height of the built surfaces in a 100 m pixel.
Methodology
Zonal statistics (standard deviation) of the GHS-BUILT-H R2023A pixel values inside the urban centre.
Methodology Short
Zonal statistics (standard deviation)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up height
Attribute ID
GH_BUH_MAX_XXXX
Indicator Name
Average built-up height
Units
m
Data Source
Pesaresi, M.; Politis, P. (2023): GHS-BUILT-H R2023A - GHS building height, derived from AW3D30, SRTM30, and Sentinel2 composite (2018).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/85005901-3a49-48dd-9d19-6261354f56fe , doi: 10.2905/85005901-3A49-48DD-9D19-6261354F56FE
Indicator description
Maximum of the values inside the urban centre of the average height of the built surfaces in a 100 m pixel.
Methodology
Zonal statistics (maximum) of the GHS-BUILT-H R2023A pixel values inside the urban centre.
Methodology Short
Zonal statistics (maximum)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up type
Attribute ID
GH_BUT_P11_XXXX
Indicator Name
Population living in residential prevalent 1-2 floors built-up
Units
Number of inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC)</p> <p>PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., ... Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
Indicator description
Total population inside the built-up in the urban centre classified as residential prevalent 1-2 floors.
Methodology
Zonal statistics (sum) of the GHS-POP R2023A pixel values inside the urban centre classified as built-up type class 11 (residential prevalent 1-2 floors).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up type
Attribute ID
GH_BUT_P12_XXXX
Indicator Name
Population living in residential prevalent 3-7 floors built-up
Units
Number of inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC)</p> <p>PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., ... Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
Indicator description
Total population inside the built-up in the urban centre classified as residential prevalent 3-7 floors.
Methodology
Zonal statistics (sum) of the GHS-POP R2023A pixel values inside the urban centre classified as built-up type class 12 (residential prevalent 3-7 floors).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up type
Attribute ID
GH_BUT_P13_XXXX
Indicator Name
Population living in residential prevalent >8 floors built-up
Units
Number of inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., ... Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
Indicator description
Total population inside the built-up in the urban centre classified as residential prevalent >8 floors.
Methodology
Zonal statistics (sum) of the GHS-POP R2023A pixel values inside the urban centre classified as built-up type class 13 (residential prevalent >8 floors).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up type
Attribute ID
GH_BUT_P21_XXXX
Indicator Name
Population living in non-residential prevalent 1-2 floors built-up
Units
Number of inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC)</p> <p>PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., ... Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
Indicator description
Total population inside the built-up in the urban centre classified as non-residential prevalent 1-2 floors.
Methodology
Zonal statistics (sum) of the GHS-POP R2023A pixel values inside the urban centre classified as built-up type class 21 (non-residential prevalent 1-2 floors).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up type
Attribute ID
GH_BUT_P22_XXXX
Indicator Name
Population living in non-residential prevalent 3-7 floors built-up
Units
Number of inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC)</p> <p>PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., ... Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
Indicator description
Total population inside the built-up in the urban centre classified as non-residential prevalent 3-7 floors.
Methodology
Zonal statistics (sum) of the GHS-POP R2023A pixel values inside the urban centre classified as built-up type class 22 (non-residential prevalent 3-7 floors).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up type
Attribute ID
GH_BUT_P23_XXXX
Indicator Name
Population living in non-residential prevalent >8 floors built-up
Units
Number of inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC)</p> <p>PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., ... Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
Indicator description
Total population inside the built-up in the urban centre classified as non-residential prevalent >8 floors.
Methodology
Zonal statistics (sum) of the GHS-POP R2023A pixel values inside the urban centre classified as built-up type class 23 (non-residential prevalent >8 floors).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up type
Attribute ID
GH_BUT_S11_XXXX
Indicator Name
Built-up surface in residential prevalent 1-2 floors built-up
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., ... Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
Indicator description
Built-up surface of the built-up in the urban centre classified as residential prevalent 1-2 floors.
Methodology
Zonal statistics (sum) of the GHS-BUILT-S R2023A pixel values inside the urban centre classified as built-up type class 11 (residential prevalent 1-2 floors).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up type
Attribute ID
GH_BUT_S12_XXXX
Indicator Name
Built-up surface in residential prevalent 3-7 floors built-up
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., ... Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
Indicator description
Built-up surface of the built-up in the urban centre classified as residential prevalent 3-7 floors.
Methodology
Zonal statistics (sum) of the GHS-BUILT-S R2023A pixel values inside the urban centre classified as built-up type class 12 (residential prevalent 3-7 floors).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up type
Attribute ID
GH_BUT_S13_XXXX
Indicator Name
Built-up surface in residential prevalent >8 floors built-up
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., ... Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
Indicator description
Built-up surface of the built-up in the urban centre classified as residential prevalent >8 floors.
Methodology
Zonal statistics (sum) of the GHS-BUILT-S R2023A pixel values inside the urban centre classified as built-up type class 13 (residential prevalent >8 floors).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up type
Attribute ID
GH_BUT_S21_XXXX
Indicator Name
Built-up surface in non-residential prevalent 1-2 floors built-up
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., ... Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
Indicator description
Built-up surface of the built-up in the urban centre classified as non-residential prevalent 1-2 floors.
Methodology
Zonal statistics (sum) of the GHS-BUILT-S R2023A pixel values inside the urban centre classified as built-up type class 21 (non-residential prevalent 1-2 floors).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up type
Attribute ID
GH_BUT_S22_XXXX
Indicator Name
Built-up surface in non-residential prevalent 3-7 floors built-up
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., ... Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
Indicator description
Built-up surface of the built-up in the urban centre classified as non-residential prevalent 3-7 floors.
Methodology
Zonal statistics (sum) of the GHS-BUILT-S R2023A pixel values inside the urban centre classified as built-up type class 22 (non-residential prevalent 3-7 floors).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up type
Attribute ID
GH_BUT_S23_XXXX
Indicator Name
Built-up surface in non-residential prevalent >8 floors built-up
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., ... Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
Indicator description
Built-up surface of the built-up in the urban centre classified as non-residential prevalent >8 floors.
Methodology
Zonal statistics (sum) of the GHS-BUILT-S R2023A pixel values inside the urban centre classified as built-up type class 23 (non-residential prevalent >8 floors).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up type
Attribute ID
GH_BUT_V11_XXXX
Indicator Name
Built-up volume in residential prevalent 1-2 floors built-up
Units
m ³
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-V R2023A - GHS built-up volume grids derived from joint assessment of Sentinel2, Landsat, and global DEM data, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/ab2f107a-03cd-47a3-85e5-139d8ec63283, doi:10.2905/AB2F107A-03CD-47A3-85E5-139D8EC63283</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., ... Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
Indicator description
Built-up volume of the built-up in the urban centre classified as residential prevalent 1-2 floors.
Methodology
Zonal statistics (sum) of the GHS-BUILT-V R2023A pixel values inside the urban centre classified as built-up type class 11 (residential prevalent 1-2 floors).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up type
Attribute ID
GH_BUT_V12_XXXX
Indicator Name
Built-up volume in residential prevalent 3-7 floors built-up
Units
m ³
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-V R2023A - GHS built-up volume grids derived from joint assessment of Sentinel2, Landsat, and global DEM data, multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/ab2f107a-03cd-47a3-85e5-139d8ec63283, doi:10.2905/AB2F107A-03CD-47A3-85E5-139D8EC63283</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., ... Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
Indicator description
Built-up volume of the built-up in the urban centre classified as residential prevalent 3-7 floors.
Methodology
Zonal statistics (sum) of the GHS-BUILT-V R2023A pixel values inside the urban centre classified as built-up type class 12 (residential prevalent 3-7 floors).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up type
Attribute ID
GH_BUT_V13_XXXX
Indicator Name
Built-up volume in residential prevalent >8 floors built-up
Units
m ³
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-V R2023A - GHS built-up volume grids derived from joint assessment of Sentinel2, Landsat, and global DEM data, multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/ab2f107a-03cd-47a3-85e5-139d8ec63283, doi:10.2905/AB2F107A-03CD-47A3-85E5-139D8EC63283</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., ... Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
Indicator description
Built-up volume of the built-up in the urban centre classified as residential prevalent >8 floors.
Methodology
Zonal statistics (sum) of the GHS-BUILT-V R2023A pixel values inside the urban centre classified as built-up type class 13 (residential prevalent >8 floors).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up type
Attribute ID
GH_BUT_V21_XXXX
Indicator Name
Built-up volume in non-residential prevalent 1-2 floors built-up
Units
m ³
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-V R2023A - GHS built-up volume grids derived from joint assessment of Sentinel2, Landsat, and global DEM data, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/ab2f107a-03cd-47a3-85e5-139d8ec63283, doi:10.2905/AB2F107A-03CD-47A3-85E5-139D8EC63283</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., ... Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
Indicator description
Built-up volume of the built-up in the urban centre classified as non-residential prevalent 1-2 floors.
Methodology
Zonal statistics (sum) of the GHS-BUILT-V R2023A pixel values inside the urban centre classified as built-up type class 21 (non-residential prevalent 1-2 floors).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up type
Attribute ID
GH_BUT_V22_XXXX
Indicator Name
Built-up volume in non-residential prevalent 3-7 floors built-up
Units
m ³
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-V R2023A - GHS built-up volume grids derived from joint assessment of Sentinel2, Landsat, and global DEM data, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/ab2f107a-03cd-47a3-85e5-139d8ec63283, doi:10.2905/AB2F107A-03CD-47A3-85E5-139D8EC63283</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., ... Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
Indicator description
Built-up volume of the built-up in the urban centre classified as non-residential prevalent 3-7 floors.
Methodology
Zonal statistics (sum) of the GHS-BUILT-V R2023A pixel values inside the urban centre classified as built-up type class 22 (non-residential prevalent 3-7 floors).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up type
Attribute ID
GH_BUT_V23_XXXX
Indicator Name
Built-up volume in non-residential prevalent >8 floors built-up
Units
m ³
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-V R2023A - GHS built-up volume grids derived from joint assessment of Sentinel2, Landsat, and global DEM data, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/ab2f107a-03cd-47a3-85e5-139d8ec63283, doi:10.2905/AB2F107A-03CD-47A3-85E5-139D8EC63283</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., ... Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
Indicator description
Built-up volume of the built-up in the urban centre classified as non-residential prevalent >8 floors.
Methodology
Zonal statistics (sum) of the GHS-BUILT-V R2023A pixel values inside the urban centre classified as built-up type class 23 (non-residential prevalent >8 floors).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up Age (Temporal Domain)
Attribute ID
GH_AGE_S75_XXXX
Indicator Name
Share of BU surface in temporal dominant before 1975
Units
%
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Uhl, J.H., Pesaresi, M., Politis, P., Krasnodębska, K., Florio, P., Kemper, T. (2024). GHS-AGE: Characterizing settlement age at planetary scale using the Global Human Settlement Layer (forthcoming).</p>
Indicator description
Share of the built-up surface in the urban centre classified as built-up before 1975 over total built-up in the urban centre.
Methodology
Ratio of the sum of the GHS-BUILT-S R2023A pixel values inside the urban centre classified as built before 1975 and the total built-up in the urban centre.
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up Age (Temporal Domain)
Attribute ID
GH_AGE_S85_XXXX
Indicator Name
Share of BU surface in temporal dominant between 1975 and 1985
Units
%
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Uhl, J.H., Pesaresi, M., Politis, P., Krasnodębska, K., Florio, P., Kemper, T. (2024). GHS-AGE: Characterizing settlement age at planetary scale using the Global Human Settlement Layer (forthcoming).</p>
Indicator description
Share of the built-up surface in the urban centre classified as built-up between 1975 and 1985 over total built-up in the urban centre.
Methodology
Ratio of the sum of the GHS-BUILT-S R2023A pixel values inside the urban centre classified as built between 1975 and 1985 and the total built-up in the urban centre.
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up Age (Temporal Domain)
Attribute ID
GH_AGE_S95_XXXX
Indicator Name
Share of BU surface in temporal dominant between 1985 and 1995
Units
%
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Uhl, J.H., Pesaresi, M., Politis, P., Krasnodębska, K., Florio, P., Kemper, T. (2024). GHS-AGE: Characterizing settlement age at planetary scale using the Global Human Settlement Layer (forthcoming).</p>
Indicator description
Share of the built-up surface in the urban centre classified as built-up between 1985 and 1995 over total built-up in the urban centre.
Methodology
Ratio of the sum of the GHS-BUILT-S R2023A pixel values inside the urban centre classified as built between 1985 and 1995 and the total built-up in the urban centre.
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up Age (Temporal Domain)
Attribute ID
GH_AGE_S05_XXXX
Indicator Name
Share of BU surface in temporal dominant between 1995 and 2005
Units
%
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Uhl, J.H., Pesaresi, M., Politis, P., Krasnodębska, K., Florio, P., Kemper, T. (2024). GHS-AGE: Characterizing settlement age at planetary scale using the Global Human Settlement Layer (forthcoming).</p>
Indicator description
Share of the built-up surface in the urban centre classified as built-up between 1995 and 2005 over total built-up in the urban centre.
Methodology
Ratio of the sum of the GHS-BUILT-S R2023A pixel values inside the urban centre classified as built between 1995 and 2005 and the total built-up in the urban centre.
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up Age (Temporal Domain)
Attribute ID
GH_AGE_S15_XXXX
Indicator Name
Share of BU surface in temporal dominant between 2005 and 2015
Units
%
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Uhl, J.H., Pesaresi, M., Politis, P., Krasnodębska, K., Florio, P., Kemper, T. (2024). GHS-AGE: Characterizing settlement age at planetary scale using the Global Human Settlement Layer (forthcoming).</p>
Indicator description
Share of the built-up surface in the urban centre classified as built-up between 2005 and 2015 over total built-up in the urban centre.
Methodology
Ratio of the sum of the GHS-BUILT-S R2023A pixel values inside the urban centre classified as built between 2005 and 2015 and the total built-up in the urban centre.
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Built-up Age (Temporal Domain)
Attribute ID
GH_AGE_S25_XXXX
Indicator Name
Share of BU surface in temporal dominant between 2015 and 2025
Units
%
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Uhl, J.H., Pesaresi, M., Politis, P., Krasnodębska, K., Florio, P., Kemper, T. (2024). GHS-AGE: Characterizing settlement age at planetary scale using the Global Human Settlement Layer (forthcoming).</p>
Indicator description
Share of the built-up surface in the urban centre classified as built-up between 2015 and 2025 over total built-up in the urban centre.
Methodology
Ratio of the sum of the GHS-BUILT-S R2023A pixel values inside the urban centre classified as built between 2015 and 2025 and the total built-up in the urban centre.
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Built-up surface
Attribute ID
GH_XST_S11_XXXX
Indicator Name
Built-up surface within the Degree of Urbanisation Classification class 11 (very low density)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Built-up surface in cells classified as very low density (DoU class 11) within the urban centre boundary.
Methodology
Zonal statistics (sum) of the GHS-BUILT-S R2023A pixel values inside the urban centre classified as class 11 in the corresponding year.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Built-up surface
Attribute ID
GH_XST_S12_XXXX
Indicator Name
Built-up surface within the Degree of Urbanisation Classification class 12 (low density rural)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Built-up surface in cells classified as low density rural (DoU class 12) within the urban centre boundary.
Methodology
Zonal statistics (sum) of the GHS-BUILT-S R2023A pixel values inside the urban centre classified as class 12 in the corresponding year.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Built-up surface
Attribute ID
GH_XST_S13_XXXX
Indicator Name
Built-up surface within the Degree of Urbanisation Classification class 13 (rural cluster)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Built-up surface in cells classified as rural cluster (DoU class 13) within the urban centre boundary.
Methodology
Zonal statistics (sum) of the GHS-BUILT-S R2023A pixel values inside the urban centre classified as class 13 in the corresponding year.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Built-up surface
Attribute ID
GH_XST_S21_XXXX
Indicator Name
Built-up surface within the Degree of Urbanisation Classification class 21 (suburban)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Built-up surface in cells classified as suburban (DoU class 21) within the urban centre boundary.
Methodology
Zonal statistics (sum) of the GHS-BUILT-S R2023A pixel values inside the urban centre classified as class 21 in the corresponding year.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Built-up surface
Attribute ID
GH_XST_S22_XXXX
Indicator Name
Built-up surface within the Degree of Urbanisation Classification class 22 (semi dense urban cluster)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Built-up surface in cells classified as semi dense urban cluster (DoU class 22) within the urban centre boundary.
Methodology
Zonal statistics (sum) of the GHS-BUILT-S R2023A pixel values inside the urban centre classified as class 22 in the corresponding year.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Built-up surface
Attribute ID
GH_XST_S23_XXXX
Indicator Name
Built-up surface within the Degree of Urbanisation Classification class 23 (dense urban cluster)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Built-up surface in cells classified as dense urban cluster (DoU class 23) within the urban centre boundary.
Methodology
Zonal statistics (sum) of the GHS-BUILT-S R2023A pixel values inside the urban centre classified as class 23 in the corresponding year.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Built-up surface
Attribute ID
GH_XST_S30_XXXX
Indicator Name
Built-up surface within the Degree of Urbanisation Classification class 30 (urban centre)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Built-up surface in cells classified as urban centre (DoU class 30) within the urban centre boundary.
Methodology
Zonal statistics (sum) of the GHS-BUILT-S R2023A pixel values inside the urban centre classified as class 30 in the corresponding year.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Built-up volume
Attribute ID
GH_XST_V11_XXXX
Indicator Name
Built-up volume within the Degree of Urbanisation Classification class 11 (very low density)
Units
m ³
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-V R2023A - GHS built-up volume grids derived from joint assessment of Sentinel2, Landsat, and global DEM data, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/ab2f107a-03cd-47a3-85e5-139d8ec63283, doi:10.2905/AB2F107A-03CD-47A3-85E5-139D8EC63283</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Built-up volume in cells classified as very low density (DoU class 11) within the urban centre boundary.
Methodology
Zonal statistics (sum) of the GHS-BUILT-V R2023A pixel values inside the urban centre classified as class 11 in the corresponding year.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Built-up volume
Attribute ID
GH_XST_V12_XXXX
Indicator Name
Built-up volume within the Degree of Urbanisation Classification class 12 (low density rural)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-V R2023A - GHS built-up volume grids derived from joint assessment of Sentinel2, Landsat, and global DEM data, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/ab2f107a-03cd-47a3-85e5-139d8ec63283, doi:10.2905/AB2F107A-03CD-47A3-85E5-139D8EC63283</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Built-up volume in cells classified as low density rural (DoU class 12) within the urban centre boundary.
Methodology
Zonal statistics (sum) of the GHS-BUILT-V R2023A pixel values inside the urban centre classified as class 12 in the corresponding year.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Built-up volume
Attribute ID
GH_XST_V13_XXXX
Indicator Name
Built-up volume within the Degree of Urbanisation Classification class 13 (rural cluster)
Units
m ³
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-V R2023A - GHS built-up volume grids derived from joint assessment of Sentinel2, Landsat, and global DEM data, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/ab2f107a-03cd-47a3-85e5-139d8ec63283, doi:10.2905/AB2F107A-03CD-47A3-85E5-139D8EC63283</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Built-up volume in cells classified as rural cluster (DoU class 13) within the urban centre boundary.
Methodology
Zonal statistics (sum) of the GHS-BUILT-V R2023A pixel values inside the urban centre classified as class 13 in the corresponding year.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Built-up volume
Attribute ID
GH_XST_V21_XXXX
Indicator Name
Built-up volume within the Degree of Urbanisation Classification class 21 (suburban)
Units
m ³
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-V R2023A - GHS built-up volume grids derived from joint assessment of Sentinel2, Landsat, and global DEM data, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/ab2f107a-03cd-47a3-85e5-139d8ec63283, doi:10.2905/AB2F107A-03CD-47A3-85E5-139D8EC63283</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Built-up volume in cells classified as suburban (DoU class 21) within the urban centre boundary.
Methodology
Zonal statistics (sum) of the GHS-BUILT-V R2023A pixel values inside the urban centre classified as class 21 in the corresponding year.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Built-up volume
Attribute ID
GH_XST_V22_XXXX
Indicator Name
Built-up volume within the Degree of Urbanisation Classification class 22 (semi dense urban cluster)
Units
m ³
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-V R2023A - GHS built-up volume grids derived from joint assessment of Sentinel2, Landsat, and global DEM data, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/ab2f107a-03cd-47a3-85e5-139d8ec63283, doi:10.2905/AB2F107A-03CD-47A3-85E5-139D8EC63283</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Built-up volume in cells classified as semi dense urban cluster (DoU class 22) within the urban centre boundary.
Methodology
Zonal statistics (sum) of the GHS-BUILT-V R2023A pixel values inside the urban centre classified as class 22 in the corresponding year.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Built-up volume
Attribute ID
GH_XST_V23_XXXX
Indicator Name
Built-up volume within the Degree of Urbanisation Classification class 23 (dense urban cluster)
Units
m ³
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-V R2023A - GHS built-up volume grids derived from joint assessment of Sentinel2, Landsat, and global DEM data, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/ab2f107a-03cd-47a3-85e5-139d8ec63283, doi:10.2905/AB2F107A-03CD-47A3-85E5-139D8EC63283</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Built-up volume in cells classified as dense urban cluster (DoU class 23) within the urban centre boundary.
Methodology
Zonal statistics (sum) of the GHS-BUILT-V R2023A pixel values inside the urban centre classified as class 23 in the corresponding year.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Built-up volume
Attribute ID
GH_XST_V30_XXXX
Indicator Name
Built-up volume within the Degree of Urbanisation Classification class 30 (urban centre)
Units
m ³
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-V R2023A - GHS built-up volume grids derived from joint assessment of Sentinel2, Landsat, and global DEM data, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/ab2f107a-03cd-47a3-85e5-139d8ec63283, doi:10.2905/AB2F107A-03CD-47A3-85E5-139D8EC63283</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Built-up volume in cells classified as urban centre (DoU class 30) within the urban centre boundary.
Methodology
Zonal statistics (sum) of the GHS-BUILT-V R2023A pixel values inside the urban centre classified as class 30 in the corresponding year.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Area
Attribute ID
GH_XST_A11_XXXX
Indicator Name
Area within the Degree of Urbanisation Classification class 11 (very low density)
Units
km ²
Data Source
Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba , doi: 10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA
Indicator description
Area of the cells classified as very low density (DoU class 11) within the urban centre boundary.
Methodology
Zonal statistics (count) of the pixels inside the urban centre classified as class 11 in the corresponding year.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Area
Attribute ID
GH_XST_A12_XXXX
Indicator Name
Area within the Degree of Urbanisation Classification class 12 (low density rural)
Units
km ²
Data Source
<p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Area of the cells classified as low density rural (DoU class 12) within the urban centre boundary.
Methodology
Zonal statistics (count) of the pixels inside the urban centre classified as class 12 in the corresponding year.
Methodology Short
Zonal statistics (count)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Area
Attribute ID
GH_XST_A13_XXXX
Indicator Name
Area within the Degree of Urbanisation Classification class 13 (rural cluster)
Units
km ²
Data Source
<p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975–2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Area of the cells classified as rural cluster (DoU class 13) within the urban centre boundary.
Methodology
Zonal statistics (count) of the pixels inside the urban centre classified as class 13 in the corresponding year.
Methodology Short
Zonal statistics (count)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Area
Attribute ID
GH_XST_A21_XXXX
Indicator Name
Area within the Degree of Urbanisation Classification class 21 (suburban)
Units
km ²
Data Source
<p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Area of the cells classified as suburban (DoU class 21) within the urban centre boundary.
Methodology
Zonal statistics (count) of the pixels inside the urban centre classified as class 21 in the corresponding year.
Methodology Short
Zonal statistics (count)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Area
Attribute ID
GH_XST_A22_XXXX
Indicator Name
Area within the Degree of Urbanisation Classification class 22 (semi dense urban cluster)
Units
km ²
Data Source
<p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Area of the cells classified as semi dense urban cluster (DoU class 22) within the urban centre boundary.
Methodology
Zonal statistics (count) of the pixels inside the urban centre classified as class 22 in the corresponding year.
Methodology Short
Zonal statistics (count)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Area
Attribute ID
GH_XST_A23_XXXX
Indicator Name
Area within the Degree of Urbanisation Classification class 23 (dense urban cluster)
Units
km ²
Data Source
<p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975–2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Area of the cells classified as dense urban cluster (DoU class 23) within the urban centre boundary.
Methodology
Zonal statistics (count) of the pixels inside the urban centre classified as class 23 in the corresponding year.
Methodology Short
Zonal statistics (count)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Area
Attribute ID
GH_XST_A30_XXXX
Indicator Name
Area within the Degree of Urbanisation Classification class 30 (urban centre)
Units
km ²
Data Source
<p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975–2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Area of the cells classified as urban centre (DoU class 30) within the urban centre boundary.
Methodology
Zonal statistics (count) of the pixels inside the urban centre classified as class 30 in the corresponding year.
Methodology Short
Zonal statistics (count)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Population
Attribute ID
GH_XST_P11_XXXX
Indicator Name
Population within the Degree of Urbanisation Classification class 11 (very low density)
Units
inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Population in the cells classified as very low density (DoU class 11) within the urban centre boundary.
Methodology
Zonal statistics (sum) of the GHS-POP R2023A pixel values inside the urban centre classified as class 11 in the corresponding year.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Population
Attribute ID
GH_XST_P12_XXXX
Indicator Name
Population within the Degree of Urbanisation Classification class 12 (low density rural)
Units
inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Population in the cells classified as low density rural (DoU class 12) within the urban centre boundary.
Methodology
Zonal statistics (sum) of the GHS-POP R2023A pixel values inside the urban centre classified as class 12 in the corresponding year.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Population
Attribute ID
GH_XST_P13_XXXX
Indicator Name
Population within the Degree of Urbanisation Classification class 13 (rural cluster)
Units
inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Population in the cells classified as rural cluster (DoU class 13) within the urban centre boundary.
Methodology
Zonal statistics (sum) of the GHS-POP R2023A pixel values inside the urban centre classified as class 13 in the corresponding year.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Population
Attribute ID
GH_XST_P21_XXXX
Indicator Name
Population within the Degree of Urbanisation Classification class 21 (suburban)
Units
inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Population in the cells classified as suburban (DoU class 21) within the urban centre boundary.
Methodology
Zonal statistics (sum) of the GHS-POP R2023A pixel values inside the urban centre classified as class 21 in the corresponding year.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Population
Attribute ID
GH_XST_P22_XXXX
Indicator Name
Population within the Degree of Urbanisation Classification class 22 (semi dense urban cluster)
Units
inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Population in the cells classified as semi dense urban cluster (DoU class 22) within the urban centre boundary.
Methodology
Zonal statistics (sum) of the GHS-POP R2023A pixel values inside the urban centre classified as class 22 in the corresponding year.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Population
Attribute ID
GH_XST_P23_XXXX
Indicator Name
Population within the Degree of Urbanisation Classification class 23 (dense urban cluster)
Units
inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Population in the cells classified as dense urban cluster (DoU class 23) within the urban centre boundary.
Methodology
Zonal statistics (sum) of the GHS-POP R2023A pixel values inside the urban centre classified as class 23 in the corresponding year.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Population
Attribute ID
GH_XST_P30_XXXX
Indicator Name
Population
Units
inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Population in the cells classified as urban centre (DoU class 30) within the urban centre boundary.
Methodology
Zonal statistics (sum) of the GHS-POP R2023A pixel values inside the urban centre classified as class 30 in the corresponding year.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Population density
Attribute ID
GH_XST_D11_XXXX
Indicator Name
Population density within the Degree of Urbanisation Classification class 11 (very low density)
Units
Inhabitants/km ²
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Population density of the cells classified as very low density (DoU class 11) within the urban centre boundary.
Methodology
Population divided by the land area, both inside the urban centre classified as class 11 in the corresponding year.
Methodology Short
Division
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Population density
Attribute ID
GH_XST_D12_XXXX
Indicator Name
Population density within the Degree of Urbanisation Classification class 12 (low density rural)
Units
Inhabitants/km ²
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Population density of the cells classified as low density rural (DoU class 12) within the urban centre boundary.
Methodology
Population divided by the land area, both inside the urban centre classified as class 12 in the corresponding year.
Methodology Short
Division
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Population density
Attribute ID
GH_XST_P13_XXXX
Indicator Name
Population density within the Degree of Urbanisation Classification class 13 (rural cluster)
Units
Inhabitants/km ²
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Population density of the cells classified as rural cluster (DoU class 13) within the urban centre boundary.
Methodology
Population divided by the land area, both inside the urban centre classified as class 13 in the corresponding year.
Methodology Short
Division
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Population density
Attribute ID
GH_XST_D21_XXXX
Indicator Name
Population density within the Degree of Urbanisation Classification class 21 (suburban)
Units
Inhabitants/km ²
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Population density of the cells classified as suburban (DoU class 21) within the urban centre boundary.
Methodology
Population divided by the land area, both inside the urban centre classified as class 21 in the corresponding year.
Methodology Short
Division
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Population density
Attribute ID
GH_XST_D22_XXXX
Indicator Name
Population density within the Degree of Urbanisation Classification class 22 (semi dense urban cluster)
Units
Inhabitants/km ²
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Population density of the cells classified as semi dense urban cluster (DoU class 22) within the urban centre boundary.
Methodology
Population divided by the land area, both inside the urban centre classified as class 22 in the corresponding year.
Methodology Short
Division
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Population density
Attribute ID
GH_XST_D23_XXXX
Indicator Name
Population density within the Degree of Urbanisation Classification class 23 (dense urban cluster)
Units
Inhabitants/km ²
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Population density of the cells classified as dense urban cluster (DoU class 23) within the urban centre boundary.
Methodology
Population divided by the land area, both inside the urban centre classified as class 23 in the corresponding year.
Methodology Short
Division
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Population density
Attribute ID
GH_XST_D30_XXXX
Indicator Name
Population density
Units
Inhabitants/km ²
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Population density of the cells classified as urban centre (DoU class 30) within the urban centre boundary.
Methodology
Population divided by the land area, both inside the urban centre classified as class 30 in the corresponding year.
Methodology Short
Division
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Land Area
Attribute ID
GH_XST_L30_XXXX
Indicator Name
Land Area in the Urban Centre
Units
km ²
Data Source
<p>Pesaresi M., Politis P. (2022): GHS-LAND R2022A - Land fraction as derived from Sentinel2 image composite (2018) and OSM data. PID: http://data.europa.eu/89h/ab7ad451-5ed5-44a6-a4d0-9f7a4e848cee European Commission, Joint Research Centre (JRC) PID: https://doi.org/10.2905/AB7AD451-5ED5-44A6-A4D0-9F7A4E848CEE, doi:10.2905/AB7AD451-5ED5-44A6-A4D0-9F7A4E848CEE</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Land surface of the cells classified as urban centre (DoU class 30) within the urban centre boundary.
Methodology
Zonal statistics (count) of the GHS-LAND R2022A pixels (when the value identifies land surface) inside the urban centre classified as class 30 in the corresponding year.
Methodology Short
Zonal statistics (count)
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
GHSL
Indicator group
Cross statistics with DoU: Water Area
Attribute ID
GH_XST_W30_XXXX
Indicator Name
Water Area in the Urban Centre
Units
km ²
Data Source
<p>Pesaresi M., Politis P. (2022): GHS-LAND R2022A - Land fraction as derived from Sentinel2 image composite (2018) and OSM data. PID: http://data.europa.eu/89h/ab7ad451-5ed5-44a6-a4d0-9f7a4e848cee European Commission, Joint Research Centre (JRC) PID: https://doi.org/10.2905/AB7AD451-5ED5-44A6-A4D0-9F7A4E848CEE, doi:10.2905/AB7AD451-5ED5-44A6-A4D0-9F7A4E848CEE</p> <p>Schiavina M., Melchiorri M., Pesaresi M. (2023): GHS-SMOD R2023A - GHS settlement layers, application of the Degree of Urbanisation methodology (stage I) to GHS-POP R2023A and GHS-BUILT-S R2023A, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/a0df7a6f-49de-46ea-9bde-563437a6e2ba, doi:10.2905/A0DF7A6F-49DE-46EA-9BDE-563437A6E2BA</p>
Indicator description
Water surface of the cells classified as urban centre (DoU class 30) within the urban centre boundary.
Methodology
Zonal statistics (count) of the GHS-LAND R2022A pixels (when the value identifies water surface) inside the urban centre classified as class 30 in the corresponding year.
Methodology Short
Zonal statistics (count)
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Bioclimatic indicators
Indicator Code
CL_B01_CUR_XXXX
Attribute ID
Annual Mean Temperature in the decade (reanalysis data)
Units
°C
Data Source
Wouters, H., (2021): Global bioclimatic indicators from 1979 to 2018 derived from reanalysis. Copernicus Climate Change Service (C3S) Climate Data Store (CDS). DOI: 10.24381/cds.bce175f0 (Accessed on 07-August-2024)
Indicator description
Annual Mean Temperature in the decade (reanalysis data)
Methodology
Zonal average of the Annual Mean Temperature pixel values touching the urban center.
Methodology Short
Zonal Statistics (avg)
Temporal Coverage
1970, 1980, 1990, 2000, 2010
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Bioclimatic indicators
Indicator Code
CL_B01_P45_XXXX
Attribute ID
Annual Mean Temperature in the decade (projection rcp 4.5 data)
Units
°C
Data Source
Wouters, H., (2021): Global bioclimatic indicators from 1979 to 2018 derived from reanalysis. Copernicus Climate Change Service (C3S) Climate Data Store (CDS). DOI: 10.24381/cds.bce175f0 (Accessed on 07-August-2024)
Indicator description
Annual Mean Temperature in the decade (projection rcp 4.5 data)
Methodology
Zonal average of the Annual Mean Temperature pixel values touching the urban center.
Methodology Short
Zonal Statistics (avg)
Temporal Coverage
2020, 2030
Uncertainties & Best practices
Assumptions for projections: temperature averages between models 'access1_0', 'bcc_csm1_1_m', 'gfdl_esm2m', 'hadgem2_cc', 'ipsl_cm5a_lr', 'noresm1_m', with ensemble members r1i1p1

Indicator thematic area
Climate
Indicator group
Bioclimatic indicators
Indicator Code
CL_B01_P85_XXXX
Attribute ID
Annual Mean Temperature in the decade (projection rcp 8.5 data)
Units
°C
Data Source
Wouters, H., (2021): Global bioclimatic indicators from 1979 to 2018 derived from reanalysis. Copernicus Climate Change Service (C3S) Climate Data Store (CDS). DOI: 10.24381/cds.bce175f0 (Accessed on 07-August-2024)
Indicator description
Annual Mean Temperature in the decade (projection rcp 8.5 data)
Methodology
Zonal average of the Annual Mean Temperature pixel values touching the urban center.
Methodology Short
Zonal Statistics (avg)
Temporal Coverage
2020, 2030
Uncertainties & Best practices
Assumptions for projections: temperature averages between models 'access1_0', 'bcc_csm1_1_m', 'gfdl_esm2m', 'hadgem2_cc', 'ipsl_cm5a_lr', 'noresm1_m', with ensemble members r1i1p1

Indicator thematic area
Climate
Indicator group
Bioclimatic indicators
Indicator Code
CL_B04_CUR_XXXX
Attribute ID
Temperature Seasonality (standard deviation ×100) - reanalysis data
Units
°C
Data Source
Wouters, H., (2021): Global bioclimatic indicators from 1979 to 2018 derived from reanalysis. Copernicus Climate Change Service (C3S) Climate Data Store (CDS). DOI: 10.24381/cds.bce175f0 (Accessed on 07-August-2024)
Indicator description
Temperature Seasonality (standard deviation ×100) - reanalysis data
Methodology
Zonal average of the Temperature Seasonality pixel values touching the urban center.
Methodology Short
Zonal Statistics (avg)
Temporal Coverage
1970, 1980, 1990, 2000, 2010
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Bioclimatic indicators
Indicator Code
CL_B04_P45_XXXX
Attribute ID
Temperature Seasonality (standard deviation ×100) - projection rcp 4.5 data
Units
°C
Data Source
Wouters, H., (2021): Global bioclimatic indicators from 1979 to 2018 derived from reanalysis. Copernicus Climate Change Service (C3S) Climate Data Store (CDS). DOI: 10.24381/cds.bce175f0 (Accessed on 07-August-2024)
Indicator description
Temperature Seasonality (standard deviation ×100) - projection rcp 4.5 data
Methodology
Zonal average of the Temperature Seasonality pixel values touching the urban center.
Methodology Short
Zonal Statistics (avg)
Temporal Coverage
2020, 2030
Uncertainties & Best practices
Assumptions for projections: temperature averages between models 'access1_0', 'bcc_csm1_1_m', 'gfdl_esm2m', 'hadgem2_cc', 'ipsl_cm5a_lr', 'noresm1_m', with ensemble members r1i1p1

Indicator thematic area
Climate
Indicator group
Bioclimatic indicators
Indicator Code
CL_B04_P85_XXXX
Attribute ID
Temperature Seasonality (standard deviation ×100) - projection rcp 8.5 data
Units
°C
Data Source
Wouters, H., (2021): Global bioclimatic indicators from 1979 to 2018 derived from reanalysis. Copernicus Climate Change Service (C3S) Climate Data Store (CDS). DOI: 10.24381/cds.bce175f0 (Accessed on 07-August-2024)
Indicator description
Temperature Seasonality (standard deviation ×100) - projection rcp 8.5 data
Methodology
Zonal average of the Temperature Seasonality pixel values touching the urban center.
Methodology Short
Zonal Statistics (avg)
Temporal Coverage
2020, 2030
Uncertainties & Best practices
Assumptions for projections: temperature averages between models 'access1_0', 'bcc_csm1_1_m', 'gfdl_esm2m', 'hadgem2_cc', 'ipsl_cm5a_lr', 'noresm1_m', with ensemble members r1i1p1

Indicator thematic area
Climate
Indicator group
Bioclimatic indicators
Indicator Code
CL_B07_CUR_XXXX
Attribute ID
Temperature Annual Range - reanalysis data
Units
°C
Data Source
Wouters, H., (2021): Global bioclimatic indicators from 1979 to 2018 derived from reanalysis. Copernicus Climate Change Service (C3S) Climate Data Store (CDS). DOI: 10.24381/cds.bce175f0 (Accessed on 07-August-2024)
Indicator description
Temperature Annual Range - reanalysis data
Methodology
Zonal average of the Temperature Annual Range pixel values touching the urban center.
Methodology Short
Zonal Statistics (avg)
Temporal Coverage
1970, 1980, 1990, 2000, 2010
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Bioclimatic indicators
Indicator Code
CL_B07_P45_XXXX
Attribute ID
Temperature Annual Range - projection rcp 4.5 data
Units
°C
Data Source
Wouters, H., (2021): Global bioclimatic indicators from 1979 to 2018 derived from reanalysis. Copernicus Climate Change Service (C3S) Climate Data Store (CDS). DOI: 10.24381/cds.bce175f0 (Accessed on 07-August-2024)
Indicator description
Temperature Annual Range - projection rcp 4.5 data
Methodology
Zonal average of the Temperature Annual Range pixel values touching the urban center.
Methodology Short
Zonal Statistics (avg)
Temporal Coverage
2020, 2030
Uncertainties & Best practices
Assumptions for projections: temperature averages between models 'access1_0', 'bcc_csm1_1_m', 'gfdl_esm2m', 'hadgem2_cc', 'ipsl_cm5a_lr', 'noresm1_m', with ensemble members r1i1p1

Indicator thematic area
Climate
Indicator group
Bioclimatic indicators
Indicator Code
CL_B07_P85_XXXX
Attribute ID
Temperature Annual Range - projection rcp 8.5 data
Units
°C
Data Source
Wouters, H., (2021): Global bioclimatic indicators from 1979 to 2018 derived from reanalysis. Copernicus Climate Change Service (C3S) Climate Data Store (CDS). DOI: 10.24381/cds.bce175f0 (Accessed on 07-August-2024)
Indicator description
Temperature Annual Range - projection rcp 8.5 data
Methodology
Zonal average of the Temperature Annual Range pixels values touching the urban center.
Methodology Short
Zonal Statistics (avg)
Temporal Coverage
2020, 2030
Uncertainties & Best practices
Assumptions for projections: temperature averages between models 'access1_0', 'bcc_csm1_1_m', 'gfdl_esm2m', 'hadgem2_cc', 'ipsl_cm5a_lr', 'noresm1_m', with ensemble members r1i1p1

Indicator thematic area
Climate
Indicator group
Bioclimatic indicators
Indicator Code
CL_B12_CUR_XXXX
Attribute ID
Annual Precipitation mean in the decade - reanalysis data
Units
mm year ⁻¹
Data Source
Wouters, H., (2021): Global bioclimatic indicators from 1979 to 2018 derived from reanalysis. Copernicus Climate Change Service (C3S) Climate Data Store (CDS). DOI: 10.24381/cds.bce175f0 (Accessed on 07-August-2024)
Indicator description
Annual Precipitation mean in the decade - reanalysis data
Methodology
Zonal average of the Annual Precipitation mean in the decade pixel values touching the urban center.
Methodology Short
Zonal Statistics (avg)
Temporal Coverage
1970, 1980, 1990, 2000, 2010
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Bioclimatic indicators
Indicator Code
CL_B12_P45_XXXX
Attribute ID
Annual Precipitation mean in the decade - projection rcp 4.5 data
Units
mm year ⁻¹
Data Source
Wouters, H., (2021): Global bioclimatic indicators from 1979 to 2018 derived from reanalysis. Copernicus Climate Change Service (C3S) Climate Data Store (CDS). DOI: 10.24381/cds.bce175f0 (Accessed on 07-August-2024)
Indicator description
Annual Precipitation mean in the decade - projection rcp 4.5 data
Methodology
Zonal average of the Annual Precipitation mean in the decade pixel values touching the urban center.
Methodology Short
Zonal Statistics (avg)
Temporal Coverage
2020, 2030
Uncertainties & Best practices
Assumptions for projections: temperature averages between models 'access1_0', 'bcc_csm1_1_m', 'gfdl_esm2m', 'hadgem2_cc', 'ipsl_cm5a_lr', 'noresm1_m', with ensemble members r1i1p1

Indicator thematic area
Climate
Indicator group
Bioclimatic indicators
Indicator Code
CL_B12_P85_XXXX
Attribute ID
Annual Precipitation mean in the decade - projection rcp 8.5 data
Units
mm year ⁻¹
Data Source
Wouters, H., (2021): Global bioclimatic indicators from 1979 to 2018 derived from reanalysis. Copernicus Climate Change Service (C3S) Climate Data Store (CDS). DOI: 10.24381/cds.bce175f0 (Accessed on 07-August-2024)
Indicator description
Annual Precipitation mean in the decade - projection rcp 8.5 data
Methodology
Zonal average of the Annual Precipitation mean in the decade pixels values touching the urban center.
Methodology Short
Zonal Statistics (avg)
Temporal Coverage
2020, 2030
Uncertainties & Best practices
Assumptions for projections: temperature averages between models 'access1_0', 'bcc_csm1_1_m', 'gfdl_esm2m', 'hadgem2_cc', 'ipsl_cm5a_lr', 'noresm1_m', with ensemble members r1i1p1

Indicator thematic area
Climate
Indicator group
Climate classification
Indicator Code
CL_KOP_CUR_XXXX
Attribute ID
Köppen-Geiger classification of the majority of UC surface - current conditions
Units
categorical
Data Source
Beck, H., Zimmermann, N., McVicar, T. et al. Present and future Köppen-Geiger climate classification maps at 1-km resolution. Sci Data 5, 180214 (2018). https://doi.org/10.1038/sdata.2018.214
Indicator description
Köppen-Geiger classification of the majority of UC surface - current conditions
Methodology
Spatial join of the Köppen-Geiger classification layer. The classification covering the greater area of the urban center is considered as the indicator value.
Methodology Short
Spatial join
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Climate classification
Indicator Code
CL_KOP_119_XXXX
Attribute ID
Köppen-Geiger classification of the majority of UC surface - projection ssp 119
Units
categorical
Data Source
Beck, H., Zimmermann, N., McVicar, T. et al. Present and future Köppen-Geiger climate classification maps at 1-km resolution. Sci Data 5, 180214 (2018). https://doi.org/10.1038/sdata.2018.214
Indicator description
Köppen-Geiger classification of the majority of UC surface - projection ssp 119
Methodology
Spatial join of the Köppen-Geiger classification layer. The classification covering the greater area of the urban center is considered as the indicator value.
Methodology Short
Spatial join
Temporal Coverage
2040, 2070
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Climate classification
Indicator Code
CL_KOP_126_XXXX
Attribute ID
Köppen-Geiger classification of the majority of UC surface - projection ssp 126
Units
categorical
Data Source
Beck, H., Zimmermann, N., McVicar, T. et al. Present and future Köppen-Geiger climate classification maps at 1-km resolution. Sci Data 5, 180214 (2018). https://doi.org/10.1038/sdata.2018.214
Indicator description
Köppen-Geiger classification of the majority of UC surface - projection ssp 126
Methodology
Spatial join of the Köppen-Geiger classification layer. The classification covering the greater area of the urban center is considered as the indicator value.
Methodology Short
Spatial join
Temporal Coverage
2040, 2070
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Climate classification
Indicator Code
CL_KOP_245_XXXX
Attribute ID
Köppen-Geiger classification of the majority of UC surface - projection ssp 245
Units
categorical
Data Source
Beck, H., Zimmermann, N., McVicar, T. et al. Present and future Köppen-Geiger climate classification maps at 1-km resolution. Sci Data 5, 180214 (2018). https://doi.org/10.1038/sdata.2018.214
Indicator description
Köppen-Geiger classification of the majority of UC surface - projection ssp 245
Methodology
Spatial join of the Köppen-Geiger classification layer. The classification covering the greater area of the urban center is considered as the indicator value.
Methodology Short
Spatial join
Temporal Coverage
2040, 2070
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Climate classification
Indicator Code
CL_KOP_370_XXXX
Attribute ID
Köppen-Geiger classification of the majority of UC surface - projection ssp 370
Units
categorical
Data Source
Beck, H., Zimmermann, N., McVicar, T. et al. Present and future Köppen-Geiger climate classification maps at 1-km resolution. Sci Data 5, 180214 (2018). https://doi.org/10.1038/sdata.2018.214
Indicator description
Köppen-Geiger classification of the majority of UC surface - projection ssp 370
Methodology
Spatial join of the Köppen-Geiger classification layer. The classification covering the greater area of the urban center is considered as the indicator value.
Methodology Short
Spatial join
Temporal Coverage
2040, 2070
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Climate classification
Indicator Code
CL_KOP_434_XXXX
Attribute ID
Köppen-Geiger classification of the majority of UC surface - projection ssp 434
Units
categorical
Data Source
Beck, H., Zimmermann, N., McVicar, T. et al. Present and future Köppen-Geiger climate classification maps at 1-km resolution. Sci Data 5, 180214 (2018). https://doi.org/10.1038/sdata.2018.214
Indicator description
Köppen-Geiger classification of the majority of UC surface - projection ssp 434
Methodology
Spatial join of the Köppen-Geiger classification layer. The classification covering the greater area of the urban center is considered as the indicator value.
Methodology Short
Spatial join
Temporal Coverage
2040, 2070
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Climate classification
Indicator Code
CL_KOP_460_XXXX
Attribute ID
Köppen-Geiger classification of the majority of UC surface - projection ssp 460
Units
categorical
Data Source
Beck, H., Zimmermann, N., McVicar, T. et al. Present and future Köppen-Geiger climate classification maps at 1-km resolution. Sci Data 5, 180214 (2018). https://doi.org/10.1038/sdata.2018.214
Indicator description
Köppen-Geiger classification of the majority of UC surface - projection ssp 460
Methodology
Spatial join of the Köppen-Geiger classification layer. The classification covering the greater area of the urban center is considered as the indicator value.
Methodology Short
Spatial join
Temporal Coverage
2040, 2070
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Climate classification
Indicator Code
CL_KOP_585_XXXX
Attribute ID
Köppen-Geiger classification of the majority of UC surface - projection ssp 585
Units
categorical
Data Source
Beck, H., Zimmermann, N., McVicar, T. et al. Present and future Köppen-Geiger climate classification maps at 1-km resolution. Sci Data 5, 180214 (2018). https://doi.org/10.1038/sdata.2018.214
Indicator description
Köppen-Geiger classification of the majority of UC surface - projection ssp 585
Methodology
Spatial join of the Köppen-Geiger classification layer. The classification covering the greater area of the urban center is considered as the indicator value.
Methodology Short
Spatial join
Temporal Coverage
2040, 2070
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Renewable potential
Indicator Code
CL_REN_PVO_XXXX
Attribute ID
Average daily PV potential
Units
kWh/kWp
Data Source
Photovoltaic power potential obtained from the “Global Solar Atlas 2.0, a free, web-based application is developed and operated by the company Solargis s.r.o. on behalf of the World Bank Group, utilizing Solargis data, with funding provided by the Energy Sector Management Assistance Program (ESMAP). For additional information: https://globalsolaratlas.info . Access 21/06/2024
Indicator description
Average daily PV potential
Methodology
Zonal average of the Photovoltaic power potential layer in the decade pixels values touching the urban center
Methodology Short
Zonal statistics (avg)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Renewable potential
Indicator Code
CL_REN_W01_XXXX
Attribute ID
Mean wind speed at 10 m above ground
Units
m/s
Data Source
<p>Neil N. Davis, Jake Badger, Andrea N. Hahmann, Brian O. Hansen, Niels G. Mortensen, Mark Kelly, Xiaoli G. Larsén, Bjarke T. Olsen, Rogier Floors, Gil Lizcano, Pau Casso, Oriol Lacave, Albert Bosch, Ides Bauwens, Oliver James Knight, Albertine Potter van Loon, Rachel Fox, Tigran Parvanyan, Søren Bo Krohn Hansen, Duncan Heathfield, Marko Onninen, Ray Drummond; <i>The Global Wind Atlas: A high-resolution dataset of climatologies and associated web-based application</i>; Bulletin of the American Meteorological Society, Volume 104: Issue 8, Pages E1507-E1525, August 2023, DOI: https://doi.org/10.1175/BAMS-D-21-0075.1</p>
Global Wind Speed obtained from the Global Wind Atlas version 3.3, a free, web-based application developed, owned and operated by the Technical University of Denmark (DTU). The Global Wind Atlas version 3.3 is released in partnership with the World Bank Group, utilizing data provided by Vortex, using funding provided by the Energy Sector Management Assistance Program (ESMAP). For additional information: https://globalwindatlas.info .
Indicator description
Mean wind speed at 10 m above ground
Methodology
Zonal average of wind speed at 10 m layer in the decade pixels values touching the urban center
Methodology Short
Zonal statistics (avg)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Renewable potential
Indicator Code
CL_REN_W05_XXXX
Attribute ID
Mean wind speed at 50 m above ground
Units
m/s
Data Source
<p>Neil N. Davis, Jake Badger, Andrea N. Hahmann, Brian O. Hansen, Niels G. Mortensen, Mark Kelly, Xiaoli G. Larsén, Bjarke T. Olsen, Rogier Floors, Gil Lizcano, Pau Casso, Oriol Lacave, Albert Bosch, Ides Bauwens, Oliver James Knight, Albertine Potter van Loon, Rachel Fox, Tigran Parvanyan, Søren Bo Krohn Hansen, Duncan Heathfield, Marko Onninen, Ray Drummond; <i>The Global Wind Atlas: A high-resolution dataset of climatologies and associated web-based application</i>; Bulletin of the American Meteorological Society, Volume 104: Issue 8, Pages E1507-E1525, August 2023, DOI: https://doi.org/10.1175/BAMS-D-21-0075.1</p>
Global Wind Speed obtained from the Global Wind Atlas version 3.3, a free, web-based application developed, owned and operated by the Technical University of Denmark (DTU). The Global Wind Atlas version 3.3 is released in partnership with the World Bank Group, utilizing data provided by Vortex, using funding provided by the Energy Sector Management Assistance Program (ESMAP). For additional information: https://globalwindatlas.info .
Indicator description
Mean wind speed at 50 m above ground
Methodology
Zonal average of wind speed at 50 m layer in the decade pixels values touching the urban center
Methodology Short
Zonal statistics (avg)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Renewable potential
Indicator Code
CL_REN_W10_XXXX
Attribute ID
Mean wind speed at 100 m above ground
Units
m/s
Data Source
Neil N. Davis, Jake Badger, Andrea N. Hahmann, Brian O. Hansen, Niels G. Mortensen, Mark Kelly, Xiaoli G. Larsén, Bjarke T. Olsen, Rogier Floors, Gil Lizcano, Pau Casso, Oriol Lacave, Albert Bosch, Ides Bauwens, Oliver James Knight, Albertine Potter van Loon, Rachel Fox, Tigran Parvanyan, Søren Bo Krohn Hansen, Duncan Heathfield, Marko Onninen, Ray Drummond; <i>The Global Wind Atlas: A high-resolution dataset of climatologies and associated web-based application</i> ; Bulletin of the American Meteorological Society, Volume 104: Issue 8, Pages E1507-E1525, August 2023, DOI: https://doi.org/10.1175/BAMS-D-21-0075.1
Global Wind Speed obtained from the Global Wind Atlas version 3.3, a free, web-based application developed, owned and operated by the Technical University of Denmark (DTU). The Global Wind Atlas version 3.3 is released in partnership with the World Bank Group, utilizing data provided by Vortex, using funding provided by the Energy Sector Management Assistance Program (ESMAP). For additional information: https://globalwindatlas.info .
Indicator description
Mean wind speed at 100 m above ground
Methodology
Zonal average of wind speed at 100 m layer in the decade pixels values touching the urban center
Methodology Short
Zonal statistics (avg)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Renewable potential
Indicator Code
CL_REN_W15_XXXX
Attribute ID
Mean wind speed at 150 m above ground
Units
m/s
Data Source
<p>Neil N. Davis, Jake Badger, Andrea N. Hahmann, Brian O. Hansen, Niels G. Mortensen, Mark Kelly, Xiaoli G. Larsén, Bjarke T. Olsen, Rogier Floors, Gil Lizcano, Pau Casso, Oriol Lacave, Albert Bosch, Ides Bauwens, Oliver James Knight, Albertine Potter van Loon, Rachel Fox, Tigran Parvanyan, Søren Bo Krohn Hansen, Duncan Heathfield, Marko Onninen, Ray Drummond; <i>The Global Wind Atlas: A high-resolution dataset of climatologies and associated web-based application</i>; Bulletin of the American Meteorological Society, Volume 104: Issue 8, Pages E1507-E1525, August 2023, DOI: https://doi.org/10.1175/BAMS-D-21-0075.1</p>
Global Wind Speed obtained from the Global Wind Atlas version 3.3, a free, web-based application developed, owned and operated by the Technical University of Denmark (DTU). The Global Wind Atlas version 3.3 is released in partnership with the World Bank Group, utilizing data provided by Vortex, using funding provided by the Energy Sector Management Assistance Program (ESMAP). For additional information: https://globalwindatlas.info .
Indicator description
Mean wind speed at 150 m above ground
Methodology
Zonal average of wind speed at 150 m layer in the decade pixels values touching the urban center
Methodology Short
Zonal statistics (avg)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Renewable potential
Indicator Code
CL_REN_W20_XXXX
Attribute ID
Mean wind speed at 200 m above ground
Units
m/s
Data Source
<p>Neil N. Davis, Jake Badger, Andrea N. Hahmann, Brian O. Hansen, Niels G. Mortensen, Mark Kelly, Xiaoli G. Larsén, Bjarke T. Olsen, Rogier Floors, Gil Lizcano, Pau Casso, Oriol Lacave, Albert Bosch, Ides Bauwens, Oliver James Knight, Albertine Potter van Loon, Rachel Fox, Tigran Parvanyan, Søren Bo Krohn Hansen, Duncan Heathfield, Marko Onninen, Ray Drummond; <i>The Global Wind Atlas: A high-resolution dataset of climatologies and associated web-based application</i>; Bulletin of the American Meteorological Society, Volume 104: Issue 8, Pages E1507-E1525, August 2023, DOI: https://doi.org/10.1175/BAMS-D-21-0075.1</p>
Global Wind Speed obtained from the Global Wind Atlas version 3.3, a free, web-based application developed, owned and operated by the Technical University of Denmark (DTU). The Global Wind Atlas version 3.3 is released in partnership with the World Bank Group, utilizing data provided by Vortex, using funding provided by the Energy Sector Management Assistance Program (ESMAP). For additional information: https://globalwindatlas.info .
Indicator description
Mean wind speed at 200 m above ground
Methodology
Zonal average of wind speed at 200 m layer in the decade pixels values touching the urban center
Methodology Short
Zonal statistics (avg)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Warm Days
Indicator Code
CL_WDS_CUR_XXXX
Attribute ID
Percentage of days with maximum temperature - reanalysis data
Units
%
Data Source
Sandstad, M., Schwingshackl, C., Iles, C., (2022): Climate extreme indices and heat stress indicators derived from CMIP6 global climate projections. Copernicus Climate Change Service (C3S) Climate Data Store (CDS). DOI: 10.24381/cds.776e08bd (Accessed on 29-August-2024)
Indicator description
Percentage of days with maximum temperature above the corresponding calendar day 90th percentile of maximum temperature for a 5-day moving window in the base period 1961-1990 - reanalysis data
Methodology
Zonal average of the data layer pixel values touching the urban center.
Methodology Short
Zonal Statistics (avg)
Temporal Coverage
1970, 1980, 1990, 2000, 2010
Uncertainties & Best practices
Assumptions: model 'ec_earth3', with ensemble members r1i1p1f1

Indicator thematic area
Climate
Indicator group
Warm Days
Indicator Code
CL_WDS_126_XXXX
Attribute ID
Percentage of days with maximum temperature - projection ssp 126
Units
%
Data Source
Sandstad, M., Schwingshackl, C., Iles, C., (2022): Climate extreme indices and heat stress indicators derived from CMIP6 global climate projections. Copernicus Climate Change Service (C3S) Climate Data Store (CDS). DOI: 10.24381/cds.776e08bd (Accessed on 29-August-2024)
Indicator description
Percentage of days with maximum temperature above the corresponding calendar day 90th percentile of maximum temperature for a 5-day moving window in the base period 1961-1990 - projection ssp 126
Methodology
Zonal average of the data layer pixel values touching the urban center.
Methodology Short
Zonal Statistics (avg)
Temporal Coverage
2020, 2030
Uncertainties & Best practices
Assumptions: model 'ec_earth3', with ensemble members r1i1p1f1

Indicator thematic area
Climate
Indicator group
Warm Days
Indicator Code
CL_WDS_245_XXXX
Attribute ID
Percentage of days with maximum temperature - projection ssp 245
Units
%
Data Source
Sandstad, M., Schwingshackl, C., Iles, C., (2022): Climate extreme indices and heat stress indicators derived from CMIP6 global climate projections. Copernicus Climate Change Service (C3S) Climate Data Store (CDS). DOI: 10.24381/cds.776e08bd (Accessed on 29-August-2024)
Indicator description
Percentage of days with maximum temperature above the corresponding calendar day 90th percentile of maximum temperature for a 5-day moving window in the base period 1961-1990 - projection ssp 245
Methodology
Zonal average of the data layer pixel values touching the urban center.
Methodology Short
Zonal Statistics (avg)
Temporal Coverage
2020, 2030
Uncertainties & Best practices
Assumptions: model 'ec_earth3', with ensemble members r1i1p1f1

Indicator thematic area
Climate
Indicator group
Warm Days
Indicator Code
CL_WDS_370_XXXX
Attribute ID
Percentage of days with maximum temperature - projection ssp 370
Units
%
Data Source
Sandstad, M., Schwingshackl, C., Iles, C., (2022): Climate extreme indices and heat stress indicators derived from CMIP6 global climate projections. Copernicus Climate Change Service (C3S) Climate Data Store (CDS). DOI: 10.24381/cds.776e08bd (Accessed on 29-August-2024)
Indicator description
Percentage of days with maximum temperature above the corresponding calendar day 90th percentile of maximum temperature for a 5-day moving window in the base period 1961-1990 - projection ssp 370
Methodology
Zonal average of the data layer pixel values touching the urban center.
Methodology Short
Zonal Statistics (avg)
Temporal Coverage
2020, 2030
Uncertainties & Best practices
Assumptions: model 'ec_earth3', with ensemble members r1i1p1f1

Indicator thematic area
Climate
Indicator group
Warm Days
Indicator Code
CL_WDS_585_XXXX
Attribute ID
Percentage of days with maximum temperature - projection ssp 585
Units
%
Data Source
Sandstad, M., Schwingshackl, C., Iles, C., (2022): Climate extreme indices and heat stress indicators derived from CMIP6 global climate projections. Copernicus Climate Change Service (C3S) Climate Data Store (CDS). DOI: 10.24381/cds.776e08bd (Accessed on 29-August-2024)
Indicator description
Percentage of days with maximum temperature above the corresponding calendar day 90th percentile of maximum temperature for a 5-day moving window in the base period 1961-1990 - projection ssp 585
Methodology
Zonal average of the data layer pixel values touching the urban center.
Methodology Short
Zonal Statistics (avg)
Temporal Coverage
2020, 2030
Uncertainties & Best practices
Assumptions: model 'ec_earth3', with ensemble members r1i1p1f1

Indicator thematic area
Climate
Indicator group
Local climate Zone
Indicator Code
CL_LCZ_A01_XXXX
Attribute ID
Share of urban center area in “compact highrise” Local Climate Zone
Units
Categorical
Data Source
Demuzere M, Kittner J, Martilli A, et al. A global map of local climate zones to support earth system modelling and urban-scale environmental science. Earth Syst Sci Data. 2022a; 14(8):3835-3873. doi:10.5194/essd-14-3835-2022. https://essd.copernicus.org/articles/14/3835/2022/
Demuzere M, Kittner J, Martilli A, et al. Global Local Climate Zone map. Zenodo (2022b) doi:10.5281/zenodo.6364594. https://zenodo.org/records/8419340
Indicator description
Share of urban center area that is classified as “compact highrise” Local Climate Zone
Methodology
Share of area of the urban center classified as “compact highrise” over total urban center area.
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Local climate Zone
Indicator Code
CL_LCZ_A02_XXXX
Attribute ID
Share of urban center area in “compact midrise” Local Climate Zone
Units
Categorical
Data Source
Demuzere M, Kittner J, Martilli A, et al. A global map of local climate zones to support earth system modelling and urban-scale environmental science. <i>Earth Syst Sci Data</i> . 2022a; 14(8):3835-3873. doi:10.5194/essd-14-3835-2022. https://essd.copernicus.org/articles/14/3835/2022/
Demuzere M, Kittner J, Martilli A, et al. Global Local Climate Zone map. Zenodo (2022b) doi:10.5281/zenodo.6364594. https://zenodo.org/records/8419340
Indicator description
Share of urban center area that is classified as “compact midrise” Local Climate Zone
Methodology
Share of area of the urban center classified as “compact midrise” over total urban center area.
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Local climate Zone
Indicator Code
CL_LCZ_A03_XXXX
Attribute ID
Share of urban center area in “compact lowrise” Local Climate Zone
Units
Categorical
Data Source
Demuzere M, Kittner J, Martilli A, et al. A global map of local climate zones to support earth system modelling and urban-scale environmental science. <i>Earth Syst Sci Data</i> . 2022a; 14(8):3835-3873. doi:10.5194/essd-14-3835-2022. https://essd.copernicus.org/articles/14/3835/2022/
Demuzere M, Kittner J, Martilli A, et al. Global Local Climate Zone map. Zenodo (2022b) doi:10.5281/zenodo.6364594. https://zenodo.org/records/8419340
Indicator description
Share of urban center area that is classified as “compact lowrise” Local Climate Zone
Methodology
Share of area of the urban center classified as “compact lowrise” over total urban center area.
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Local climate Zone
Indicator Code
CL_LCZ_A04_XXXX
Attribute ID
Share of urban center area in “open highrise” Local Climate Zone
Units
Categorical
Data Source
Demuzere M, Kittner J, Martilli A, et al. A global map of local climate zones to support earth system modelling and urban-scale environmental science. Earth Syst Sci Data. 2022a; 14(8):3835-3873. doi:10.5194/essd-14-3835-2022. https://essd.copernicus.org/articles/14/3835/2022/
Demuzere M, Kittner J, Martilli A, et al. Global Local Climate Zone map. Zenodo (2022b) doi:10.5281/zenodo.6364594. https://zenodo.org/records/8419340
Indicator description
Share of urban center area that is classified as “open highrise” Local Climate Zone
Methodology
Share of area of the urban center classified as “open highrise” over total urban center area.
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Local climate Zone
Indicator Code
CL_LCZ_A05_XXXX
Attribute ID
Share of urban center area in “open midrise” Local Climate Zone
Units
Categorical
Data Source
Demuzere M, Kittner J, Martilli A, et al. A global map of local climate zones to support earth system modelling and urban-scale environmental science. Earth Syst Sci Data. 2022a; 14(8):3835-3873. doi:10.5194/essd-14-3835-2022. https://essd.copernicus.org/articles/14/3835/2022/
Demuzere M, Kittner J, Martilli A, et al. Global Local Climate Zone map. Zenodo (2022b) doi:10.5281/zenodo.6364594. https://zenodo.org/records/8419340
Indicator description
Share of urban center area that is classified as “open midrise” Local Climate Zone
Methodology
Share of area of the urban center classified as “open midrise” over total urban center area.
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Local climate Zone
Indicator Code
CL_LCZ_A06_XXXX
Attribute ID
Share of urban center area in “open lowrise” Local Climate Zone
Units
Categorical
Data Source
Demuzere M, Kittner J, Martilli A, et al. A global map of local climate zones to support earth system modelling and urban-scale environmental science. Earth Syst Sci Data. 2022a; 14(8):3835-3873. doi:10.5194/essd-14-3835-2022. https://essd.copernicus.org/articles/14/3835/2022/
Demuzere M, Kittner J, Martilli A, et al. Global Local Climate Zone map. Zenodo (2022b) doi:10.5281/zenodo.6364594. https://zenodo.org/records/8419340
Indicator description
Share of urban center area that is classified as “open lowrise” Local Climate Zone
Methodology
Share of area of the urban center classified as “open lowrise” over total urban center area.
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Local climate Zone
Indicator Code
CL_LCZ_A07_XXXX
Attribute ID
Share of urban center area in “lightweight lowrise” Local Climate Zone
Units
Categorical
Data Source
Demuzere M, Kittner J, Martilli A, et al. A global map of local climate zones to support earth system modelling and urban-scale environmental science. Earth Syst Sci Data. 2022a; 14(8):3835-3873. doi:10.5194/essd-14-3835-2022. https://essd.copernicus.org/articles/14/3835/2022/
Demuzere M, Kittner J, Martilli A, et al. Global Local Climate Zone map. Zenodo (2022b) doi:10.5281/zenodo.6364594. https://zenodo.org/records/8419340
Indicator description
Share of urban center area that is classified as “lightweight lowrise” Local Climate Zone
Methodology
Share of area of the urban center classified as “lightweight lowrise” over total urban center area.
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Local climate Zone
Indicator Code
CL_LCZ_A08_XXXX
Attribute ID
Share of urban center area in “large lowrise” Local Climate Zone
Units
Categorical
Data Source
Demuzere M, Kittner J, Martilli A, et al. A global map of local climate zones to support earth system modelling and urban-scale environmental science. Earth Syst Sci Data. 2022a; 14(8):3835-3873. doi:10.5194/essd-14-3835-2022. https://essd.copernicus.org/articles/14/3835/2022/
Demuzere M, Kittner J, Martilli A, et al. Global Local Climate Zone map. Zenodo (2022b) doi:10.5281/zenodo.6364594. https://zenodo.org/records/8419340
Indicator description
Share of urban center area that is classified as “large lowrise” Local Climate Zone
Methodology
Share of area of the urban center classified as “large lowrise” over total urban center area.
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Local climate Zone
Indicator Code
CL_LCZ_A09_XXXX
Attribute ID
Share of urban center area in “sparsely built” Local Climate Zone
Units
Categorical
Data Source
Demuzere M, Kittner J, Martilli A, et al. A global map of local climate zones to support earth system modelling and urban-scale environmental science. Earth Syst Sci Data. 2022a; 14(8):3835-3873. doi:10.5194/essd-14-3835-2022. https://essd.copernicus.org/articles/14/3835/2022/
Demuzere M, Kittner J, Martilli A, et al. Global Local Climate Zone map. Zenodo (2022b) doi:10.5281/zenodo.6364594. https://zenodo.org/records/8419340
Indicator description
Share of urban center area that is classified as “sparsely built” Local Climate Zone
Methodology
Share of area of the urban center classified as “sparsely built” over total urban center area.
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Local climate Zone
Indicator Code
CL_LCZ_A10_XXXX
Attribute ID
Share of urban center area in “heavy industry” Local Climate Zone
Units
Categorical
Data Source
Demuzere M, Kittner J, Martilli A, et al. A global map of local climate zones to support earth system modelling and urban-scale environmental science. Earth Syst Sci Data. 2022a; 14(8):3835-3873. doi:10.5194/essd-14-3835-2022. https://essd.copernicus.org/articles/14/3835/2022/
Demuzere M, Kittner J, Martilli A, et al. Global Local Climate Zone map. Zenodo (2022b) doi:10.5281/zenodo.6364594. https://zenodo.org/records/8419340
Indicator description
Share of urban center area that is classified as “heavy industry” Local Climate Zone
Methodology
Share of area of the urban center classified as “heavy industry” over total urban center area.
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Local climate Zone
Indicator Code
CL_LCZ_A11_XXXX
Attribute ID
Share of urban center area in “dense trees” Local Climate Zone
Units
Categorical
Data Source
Demuzere M, Kittner J, Martilli A, et al. A global map of local climate zones to support earth system modelling and urban-scale environmental science. Earth Syst Sci Data. 2022a; 14(8):3835-3873. doi:10.5194/essd-14-3835-2022. https://essd.copernicus.org/articles/14/3835/2022/
Demuzere M, Kittner J, Martilli A, et al. Global Local Climate Zone map. Zenodo (2022b) doi:10.5281/zenodo.6364594. https://zenodo.org/records/8419340
Indicator description
Share of urban center area that is classified as “dense trees” Local Climate Zone
Methodology
Share of area of the urban center classified as “dense trees” over total urban center area.
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Local climate Zone
Indicator Code
CL_LCZ_A12_XXXX
Attribute ID
Share of urban center area in “scattered trees” Local Climate Zone
Units
Categorical
Data Source
Demuzere M, Kittner J, Martilli A, et al. A global map of local climate zones to support earth system modelling and urban-scale environmental science. <i>Earth Syst Sci Data</i> . 2022a; 14(8):3835-3873. doi:10.5194/essd-14-3835-2022. https://essd.copernicus.org/articles/14/3835/2022/
Demuzere M, Kittner J, Martilli A, et al. Global Local Climate Zone map. Zenodo (2022b) doi:10.5281/zenodo.6364594. https://zenodo.org/records/8419340
Indicator description
Share of urban center area that is classified as “scattered trees” Local Climate Zone
Methodology
Share of area of the urban center classified as “scattered trees” over total urban center area.
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Local climate Zone
Indicator Code
CL_LCZ_A13_XXXX
Attribute ID
Share of urban center area in “bush, scrub” Local Climate Zone
Units
Categorical
Data Source
Demuzere M, Kittner J, Martilli A, et al. A global map of local climate zones to support earth system modelling and urban-scale environmental science. Earth Syst Sci Data. 2022a; 14(8):3835-3873. doi:10.5194/essd-14-3835-2022. https://essd.copernicus.org/articles/14/3835/2022/
Demuzere M, Kittner J, Martilli A, et al. Global Local Climate Zone map. Zenodo (2022b) doi:10.5281/zenodo.6364594. https://zenodo.org/records/8419340
Indicator description
Share of urban center area that is classified as “bush, scrub” Local Climate Zone
Methodology
Share of area of the urban center classified as “bush, scrub” over total urban center area.
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Local climate Zone
Indicator Code
CL_LCZ_A14_XXXX
Attribute ID
Share of urban center area in “low plants” Local Climate Zone
Units
Categorical
Data Source
Demuzere M, Kittner J, Martilli A, et al. A global map of local climate zones to support earth system modelling and urban-scale environmental science. Earth Syst Sci Data. 2022a; 14(8):3835-3873. doi:10.5194/essd-14-3835-2022. https://essd.copernicus.org/articles/14/3835/2022/
Demuzere M, Kittner J, Martilli A, et al. Global Local Climate Zone map. Zenodo (2022b) doi:10.5281/zenodo.6364594. https://zenodo.org/records/8419340
Indicator description
Share of urban center area that is classified as “low plants” Local Climate Zone
Methodology
Share of area of the urban center classified as “low plants” over total urban center area.
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Local climate Zone
Indicator Code
CL_LCZ_A15_XXXX
Attribute ID
Share of urban center area in “bare rock or paved” Local Climate Zone
Units
Categorical
Data Source
Demuzere M, Kittner J, Martilli A, et al. A global map of local climate zones to support earth system modelling and urban-scale environmental science. Earth Syst Sci Data. 2022a; 14(8):3835-3873. doi:10.5194/essd-14-3835-2022. https://essd.copernicus.org/articles/14/3835/2022/
Demuzere M, Kittner J, Martilli A, et al. Global Local Climate Zone map. Zenodo (2022b) doi:10.5281/zenodo.6364594. https://zenodo.org/records/8419340
Indicator description
Share of urban center area that is classified as “bare rock or paved” Local Climate Zone
Methodology
Share of area of the urban center classified as “bare rock or paved” over total urban center area.
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Local climate Zone
Indicator Code
CL_LCZ_A16_XXXX
Attribute ID
Share of urban center area in “bare soil or sand” Local Climate Zone
Units
Categorical
Data Source
Demuzere M, Kittner J, Martilli A, et al. A global map of local climate zones to support earth system modelling and urban-scale environmental science. Earth Syst Sci Data. 2022a; 14(8):3835-3873. doi:10.5194/essd-14-3835-2022. https://essd.copernicus.org/articles/14/3835/2022/
Demuzere M, Kittner J, Martilli A, et al. Global Local Climate Zone map. Zenodo (2022b) doi:10.5281/zenodo.6364594. https://zenodo.org/records/8419340
Indicator description
Share of urban center area that is classified as “bare soil or sand” Local Climate Zone
Methodology
Share of area of the urban center classified as “bare soil or sand” over total urban center area.
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Climate
Indicator group
Local climate Zone
Indicator Code
CL_LCZ_A17_XXXX
Attribute ID
Share of urban center area in “water” Local Climate Zone
Units
Categorical
Data Source
Demuzere M, Kittner J, Martilli A, et al. A global map of local climate zones to support earth system modelling and urban-scale environmental science. <i>Earth Syst Sci Data</i> . 2022a; 14(8):3835-3873. doi:10.5194/essd-14-3835-2022. https://essd.copernicus.org/articles/14/3835/2022/
Demuzere M, Kittner J, Martilli A, et al. Global Local Climate Zone map. Zenodo (2022b) doi:10.5281/zenodo.6364594. https://zenodo.org/records/8419340
Indicator description
Share of urban center area that is classified as “water” Local Climate Zone
Methodology
Share of area of the urban center classified as “water” over total urban center area.
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance and sector
Attribute ID
EM_CO2_AGR_XXXX
Indicator Name
Total CO2 emissions in agriculture sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO2, EDGAR CH4, EDGAR N2O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
<u>EDGAR v8.1 air pollutant emissions: https://edgar.jrc.ec.europa.eu/dataset_ap81</u>
Crippa, M., Guizzardi, D., Pagani, F., Schiavina, M., Melchiorri, M., Pisoni, E., Graziosi, F., Muntean, M., Maes, J., Dijkstra, L., Van Damme, M., Clarisse, L., and Coheur, P.: Insights into the spatial distribution of global, national, and subnational greenhouse gas emissions in the Emissions Database for Global Atmospheric Research (EDGAR v8.0), Earth Syst. Sci. Data, 16, 2811–2830, doi:10.5194/essd-16-2811-2024, 2024.
Indicator description
Total CO2 emissions in agriculture sector
Methodology
Zonal statistics (sum) of the EDGAR gridded emissions (with a resolution of 0.1x0.1 degree) and the urban centres polygons. If a cell is fully inside a polygon, the 100% of emissions of that cell is allocated to the polygon itself. If a cell is partly inside / partly outside a polygon, the % of the cell's area belonging to the polygon is computed, and applied to allocate a fraction of the grid emissions to that polygon.
Methodology Short
Zonal Statistics (sum)
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance and sector
Attribute ID
EM_CO2_ENE_XXXX
Indicator Name
Total CO2 emissions in the energy sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO2, EDGAR CH4, EDGAR N2O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
EDGAR v8.1 air pollutant emissions: https://edgar.jrc.ec.europa.eu/dataset_ap81
Crippa, M., Guizzardi, D., Pagani, F., Schiavina, M., Melchiorri, M., Pisoni, E., Graziosi, F., Muntean, M., Maes, J., Dijkstra, L., Van Damme, M., Clarisse, L., and Coheur, P.: Insights into the spatial distribution of global, national, and subnational greenhouse gas emissions in the Emissions Database for Global Atmospheric Research (EDGAR v8.0), Earth Syst. Sci. Data, 16, 2811–2830, doi:10.5194/essd-16-2811-2024, 2024.
Indicator description
Total CO2 emissions in the energy sector
Methodology
Zonal statistics (sum) of the EDGAR gridded emissions (with a resolution of 0.1x0.1 degree) and the urban centres polygons. If a cell is fully inside a polygon, the 100% of emissions of that cell is allocated to the polygon itself. If a cell is partly inside / partly outside a polygon, the % of the cell's area belonging to the polygon is computed, and applied to allocate a fraction of the grid emissions to that polygon.
Methodology Short
Zonal Statistics (sum)
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance and sector
Attribute ID
EM_CO2_IND_XXXX
Indicator Name
Total CO2 emissions in the industry sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO2, EDGAR CH4, EDGAR N2O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
<u>EDGAR v8.1 air pollutant emissions: https://edgar.jrc.ec.europa.eu/dataset_ap81</u>
Crippa, M., Guizzardi, D., Pagani, F., Schiavina, M., Melchiorri, M., Pisoni, E., Graziosi, F., Muntean, M., Maes, J., Dijkstra, L., Van Damme, M., Clarisse, L., and Coheur, P.: Insights into the spatial distribution of global, national, and subnational greenhouse gas emissions in the Emissions Database for Global Atmospheric Research (EDGAR v8.0), Earth Syst. Sci. Data, 16, 2811–2830, doi:10.5194/essd-16-2811-2024, 2024.
Indicator description
Total CO2 emissions in the industry sector
Methodology
Zonal statistics (sum) of the EDGAR gridded emissions (with a resolution of 0.1x0.1 degree) and the urban centres polygons. If a cell is fully inside a polygon, the 100% of emissions of that cell is allocated to the polygon itself. If a cell is partly inside / partly outside a polygon, the % of the cell's area belonging to the polygon is computed, and applied to allocate a fraction of the grid emissions to that polygon.
Methodology Short
Zonal Statistics (sum)
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance and sector
Attribute ID
EM_CO2_RES_XXXX
Indicator Name
Total CO2 emissions in residential sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO2, EDGAR CH4, EDGAR N2O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
<u>EDGAR v8.1 air pollutant emissions: https://edgar.jrc.ec.europa.eu/dataset_ap81</u>
Crippa, M., Guizzardi, D., Pagani, F., Schiavina, M., Melchiorri, M., Pisoni, E., Graziosi, F., Muntean, M., Maes, J., Dijkstra, L., Van Damme, M., Clarisse, L., and Coheur, P.: Insights into the spatial distribution of global, national, and subnational greenhouse gas emissions in the Emissions Database for Global Atmospheric Research (EDGAR v8.0), Earth Syst. Sci. Data, 16, 2811–2830, doi:10.5194/essd-16-2811-2024, 2024.
Indicator description
Total CO2 emissions in residential sector
Methodology
Zonal statistics (sum) of the EDGAR gridded emissions (with a resolution of 0.1x0.1 degree) and the urban centres polygons. If a cell is fully inside a polygon, the 100% of emissions of that cell is allocated to the polygon itself. If a cell is partly inside / partly outside a polygon, the % of the cell's area belonging to the polygon is computed, and applied to allocate a fraction of the grid emissions to that polygon.
Methodology Short
Zonal Statistics (sum)
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance and sector
Attribute ID
EM_CO2_TRA_XXXX
Indicator Name
Total CO2 emissions in transport sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO2, EDGAR CH4, EDGAR N2O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
<u>EDGAR v8.1 air pollutant emissions: https://edgar.jrc.ec.europa.eu/dataset_ap81</u>
Crippa, M., Guizzardi, D., Pagani, F., Schiavina, M., Melchiorri, M., Pisoni, E., Graziosi, F., Muntean, M., Maes, J., Dijkstra, L., Van Damme, M., Clarisse, L., and Coheur, P.: Insights into the spatial distribution of global, national, and subnational greenhouse gas emissions in the Emissions Database for Global Atmospheric Research (EDGAR v8.0), Earth Syst. Sci. Data, 16, 2811–2830, doi:10.5194/essd-16-2811-2024, 2024.
Indicator description
Total CO2 emissions in transport sector
Methodology
Zonal statistics (sum) of the EDGAR gridded emissions (with a resolution of 0.1x0.1 degree) and the urban centres polygons. If a cell is fully inside a polygon, the 100% of emissions of that cell is allocated to the polygon itself. If a cell is partly inside / partly outside a polygon, the % of the cell's area belonging to the polygon is computed, and applied to allocate a fraction of the grid emissions to that polygon.
Methodology Short
Zonal Statistics (sum)
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance and sector
Attribute ID
EM_CO2_WAS_XXXX
Indicator Name
Total CO2 emissions in waste sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO2, EDGAR CH4, EDGAR N2O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
<u>EDGAR v8.1 air pollutant emissions: https://edgar.jrc.ec.europa.eu/dataset_ap81</u>
Crippa, M., Guizzardi, D., Pagani, F., Schiavina, M., Melchiorri, M., Pisoni, E., Graziosi, F., Muntean, M., Maes, J., Dijkstra, L., Van Damme, M., Clarisse, L., and Coheur, P.: Insights into the spatial distribution of global, national, and subnational greenhouse gas emissions in the Emissions Database for Global Atmospheric Research (EDGAR v8.0), Earth Syst. Sci. Data, 16, 2811–2830, doi:10.5194/essd-16-2811-2024, 2024.
Indicator description
Total CO2 emissions in waste sector
Methodology
Zonal statistics (sum) of the EDGAR gridded emissions (with a resolution of 0.1x0.1 degree) and the urban centres polygons. If a cell is fully inside a polygon, the 100% of emissions of that cell is allocated to the polygon itself. If a cell is partly inside / partly outside a polygon, the % of the cell's area belonging to the polygon is computed, and applied to allocate a fraction of the grid emissions to that polygon.
Methodology Short
Zonal Statistics (sum)
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance and sector
Attribute ID
EM_GHG_AGR_XXXX
Indicator Name
Total GHG emissions in agriculture sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
<u>EDGAR v8.1 air pollutant emissions: https://edgar.jrc.ec.europa.eu/dataset_ap81</u>
Crippa, M., Guizzardi, D., Pagani, F., Schiavina, M., Melchiorri, M., Pisoni, E., Graziosi, F., Muntean, M., Maes, J., Dijkstra, L., Van Damme, M., Clarisse, L., and Coheur, P.: Insights into the spatial distribution of global, national, and subnational greenhouse gas emissions in the Emissions Database for Global Atmospheric Research (EDGAR v8.0), Earth Syst. Sci. Data, 16, 2811–2830, doi:10.5194/essd-16-2811-2024, 2024.
Indicator description
Total GHG emissions in agriculture sector
Methodology
Zonal statistics (sum) of the EDGAR gridded emissions (with a resolution of 0.1x0.1 degree) and the urban centres polygons. If a cell is fully inside a polygon, the 100% of emissions of that cell is allocated to the polygon itself. If a cell is partly inside / partly outside a polygon, the % of the cell's area belonging to the polygon is computed, and applied to allocate a fraction of the grid emissions to that polygon.
Methodology Short
Zonal Statistics (sum)
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance and sector
Attribute ID
EM_GHG_ENE_XXXX
Indicator Name
Total GHG emissions in the energy sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
<u>EDGAR v8.1 air pollutant emissions: https://edgar.jrc.ec.europa.eu/dataset_ap81</u>
Crippa, M., Guizzardi, D., Pagani, F., Schiavina, M., Melchiorri, M., Pisoni, E., Graziosi, F., Muntean, M., Maes, J., Dijkstra, L., Van Damme, M., Clarisse, L., and Coheur, P.: Insights into the spatial distribution of global, national, and subnational greenhouse gas emissions in the Emissions Database for Global Atmospheric Research (EDGAR v8.0), Earth Syst. Sci. Data, 16, 2811–2830, doi:10.5194/essd-16-2811-2024, 2024.
Indicator description
Total GHG emissions in the energy sector
Methodology
Zonal statistics (sum) of the EDGAR gridded emissions (with a resolution of 0.1x0.1 degree) and the urban centres polygons. If a cell is fully inside a polygon, the 100% of emissions of that cell is allocated to the polygon itself. If a cell is partly inside / partly outside a polygon, the % of the cell's area belonging to the polygon is computed, and applied to allocate a fraction of the grid emissions to that polygon.
Methodology Short
Zonal Statistics (sum)
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance and sector
Attribute ID
EM_GHG_IND_XXXX
Indicator Name
Total GHG emissions in the industry sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
<u>EDGAR v8.1 air pollutant emissions: https://edgar.jrc.ec.europa.eu/dataset_ap81</u>
Crippa, M., Guizzardi, D., Pagani, F., Schiavina, M., Melchiorri, M., Pisoni, E., Graziosi, F., Muntean, M., Maes, J., Dijkstra, L., Van Damme, M., Clarisse, L., and Coheur, P.: Insights into the spatial distribution of global, national, and subnational greenhouse gas emissions in the Emissions Database for Global Atmospheric Research (EDGAR v8.0), Earth Syst. Sci. Data, 16, 2811–2830, doi:10.5194/essd-16-2811-2024, 2024.
Indicator description
Total GHG emissions in the industry sector
Methodology
Zonal statistics (sum) of the EDGAR gridded emissions (with a resolution of 0.1x0.1 degree) and the urban centres polygons. If a cell is fully inside a polygon, the 100% of emissions of that cell is allocated to the polygon itself. If a cell is partly inside / partly outside a polygon, the % of the cell's area belonging to the polygon is computed, and applied to allocate a fraction of the grid emissions to that polygon.
Methodology Short
Zonal Statistics (sum)
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance and sector
Attribute ID
EM_GHG_RES_XXXX
Indicator Name
Total GHG emissions in residential sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
<u>EDGAR v8.1 air pollutant emissions: https://edgar.jrc.ec.europa.eu/dataset_ap81</u>
Crippa, M., Guizzardi, D., Pagani, F., Schiavina, M., Melchiorri, M., Pisoni, E., Graziosi, F., Muntean, M., Maes, J., Dijkstra, L., Van Damme, M., Clarisse, L., and Coheur, P.: Insights into the spatial distribution of global, national, and subnational greenhouse gas emissions in the Emissions Database for Global Atmospheric Research (EDGAR v8.0), Earth Syst. Sci. Data, 16, 2811–2830, doi:10.5194/essd-16-2811-2024, 2024.
Indicator description
Total GHG emissions in residential sector
Methodology
Zonal statistics (sum) of the EDGAR gridded emissions (with a resolution of 0.1x0.1 degree) and the urban centres polygons. If a cell is fully inside a polygon, the 100% of emissions of that cell is allocated to the polygon itself. If a cell is partly inside / partly outside a polygon, the % of the cell's area belonging to the polygon is computed, and applied to allocate a fraction of the grid emissions to that polygon.
Methodology Short
Zonal Statistics (sum)
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance and sector
Attribute ID
EM_GHG_TRA_XXXX
Indicator Name
Total GHG emissions in transport sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
<u>EDGAR v8.1 air pollutant emissions: https://edgar.jrc.ec.europa.eu/dataset_ap81</u>
Crippa, M., Guizzardi, D., Pagani, F., Schiavina, M., Melchiorri, M., Pisoni, E., Graziosi, F., Muntean, M., Maes, J., Dijkstra, L., Van Damme, M., Clarisse, L., and Coheur, P.: Insights into the spatial distribution of global, national, and subnational greenhouse gas emissions in the Emissions Database for Global Atmospheric Research (EDGAR v8.0), Earth Syst. Sci. Data, 16, 2811–2830, doi:10.5194/essd-16-2811-2024, 2024.
Indicator description
Total GHG emissions in transport sector
Methodology
Zonal statistics (sum) of the EDGAR gridded emissions (with a resolution of 0.1x0.1 degree) and the urban centres polygons. If a cell is fully inside a polygon, the 100% of emissions of that cell is allocated to the polygon itself. If a cell is partly inside / partly outside a polygon, the % of the cell's area belonging to the polygon is computed, and applied to allocate a fraction of the grid emissions to that polygon.
Methodology Short
Zonal Statistics (sum)
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance and sector
Attribute ID
EM_GHG_WAS_XXXX
Indicator Name
Total GHG emissions in waste sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
<u>EDGAR v8.1 air pollutant emissions: https://edgar.jrc.ec.europa.eu/dataset_ap81</u>
Crippa, M., Guizzardi, D., Pagani, F., Schiavina, M., Melchiorri, M., Pisoni, E., Graziosi, F., Muntean, M., Maes, J., Dijkstra, L., Van Damme, M., Clarisse, L., and Coheur, P.: Insights into the spatial distribution of global, national, and subnational greenhouse gas emissions in the Emissions Database for Global Atmospheric Research (EDGAR v8.0), Earth Syst. Sci. Data, 16, 2811–2830, doi:10.5194/essd-16-2811-2024, 2024.
Indicator description
Total GHG emissions in waste sector
Methodology
Zonal statistics (sum) of the EDGAR gridded emissions (with a resolution of 0.1x0.1 degree) and the urban centres polygons. If a cell is fully inside a polygon, the 100% of emissions of that cell is allocated to the polygon itself. If a cell is partly ins
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance and sector
Attribute ID
EM_NOX_AGR_XXXX
Indicator Name
Total NOx emissions in agriculture sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
<u>EDGAR v8.1 air pollutant emissions: https://edgar.jrc.ec.europa.eu/dataset_ap81</u>
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Indicator description
Total NOx emissions in agriculture sector
Methodology
Zonal statistics (sum) of the EDGAR gridded emissions (with a resolution of 0.1x0.1 degree) and the urban centres polygons. If a cell is fully inside a polygon, the 100% of emissions of that cell is allocated to the polygon itself. If a cell is partly ins
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance and sector
Attribute ID
EM_NOX_ENE_XXXX
Indicator Name
Total NOx emissions in the energy sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
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Indicator description
Total NOx emissions in the energy sector
Methodology
Zonal statistics (sum) of the EDGAR gridded emissions (with a resolution of 0.1x0.1 degree) and the urban centres polygons. If a cell is fully inside a polygon, the 100% of emissions of that cell is allocated to the polygon itself. If a cell is partly ins
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance and sector
Attribute ID
EM_NOX_IND_XXXX
Indicator Name
Total NOx emissions in the industry sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
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Indicator description
Total NOx emissions in the industry sector
Methodology
Zonal statistics (sum) of the EDGAR gridded emissions (with a resolution of 0.1x0.1 degree) and the urban centres polygons. If a cell is fully inside a polygon, the 100% of emissions of that cell is allocated to the polygon itself. If a cell is partly ins
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance and sector
Attribute ID
EM_NOX_RES_XXXX
Indicator Name
Total NOx emissions in residential sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
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Indicator description
Total NOx emissions in residential sector
Methodology
Zonal statistics (sum) of the EDGAR gridded emissions (with a resolution of 0.1x0.1 degree) and the urban centres polygons. If a cell is fully inside a polygon, the 100% of emissions of that cell is allocated to the polygon itself. If a cell is partly ins
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance and sector
Attribute ID
EM_NOX_TRA_XXXX
Indicator Name
Total NOx emissions in transport sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
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Indicator description
Total NOx emissions in transport sector
Methodology
Zonal statistics (sum) of the EDGAR gridded emissions (with a resolution of 0.1x0.1 degree) and the urban centres polygons. If a cell is fully inside a polygon, the 100% of emissions of that cell is allocated to the polygon itself. If a cell is partly ins
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance and sector
Attribute ID
EM_NOX_WAS_XXXX
Indicator Name
Total NOx emissions in waste sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
<u>EDGAR v8.1 air pollutant emissions: https://edgar.jrc.ec.europa.eu/dataset_ap81</u>
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Indicator description
Total NOx emissions in waste sector
Methodology
Zonal statistics (sum) of the EDGAR gridded emissions (with a resolution of 0.1x0.1 degree) and the urban centres polygons. If a cell is fully inside a polygon, the 100% of emissions of that cell is allocated to the polygon itself. If a cell is partly ins
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance and sector
Attribute ID
EM_PM2_AGR_XXXX
Indicator Name
Total PM2.5 emissions in agriculture sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
<u>EDGAR v8.1 air pollutant emissions: https://edgar.jrc.ec.europa.eu/dataset_ap81</u>
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Indicator description
Total PM2.5 emissions in agriculture sector
Methodology
Zonal statistics (sum) of the EDGAR gridded emissions (with a resolution of 0.1x0.1 degree) and the urban centres polygons. If a cell is fully inside a polygon, the 100% of emissions of that cell is allocated to the polygon itself. If a cell is partly ins
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance and sector
Attribute ID
EM_PM2_ENE_XXXX
Indicator Name
Total PM2.5 emissions in the energy sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
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Indicator description
Total PM2.5 emissions in the energy sector
Methodology
Zonal statistics (sum) of the EDGAR gridded emissions (with a resolution of 0.1x0.1 degree) and the urban centres polygons. If a cell is fully inside a polygon, the 100% of emissions of that cell is allocated to the polygon itself. If a cell is partly ins
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance and sector
Attribute ID
EM_PM2_IND_XXXX
Indicator Name
Total PM2.5 emissions in the industry sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
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Indicator description
Total PM2.5 emissions in the industry sector
Methodology
Zonal statistics (sum) of the EDGAR gridded emissions (with a resolution of 0.1x0.1 degree) and the urban centres polygons. If a cell is fully inside a polygon, the 100% of emissions of that cell is allocated to the polygon itself. If a cell is partly ins
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance and sector
Attribute ID
EM_PM2_RES_XXXX
Indicator Name
Total PM2.5 emissions in residential sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
<u>EDGAR v8.1 air pollutant emissions: https://edgar.jrc.ec.europa.eu/dataset_ap81</u>
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Indicator description
Total PM2.5 emissions in residential sector
Methodology
Zonal statistics (sum) of the EDGAR gridded emissions (with a resolution of 0.1x0.1 degree) and the urban centres polygons. If a cell is fully inside a polygon, the 100% of emissions of that cell is allocated to the polygon itself. If a cell is partly ins
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance and sector
Attribute ID
EM_PM2_TRA_XXXX
Indicator Name
Total PM2.5 emissions in transport sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
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Indicator description
Total PM2.5 emissions in transport sector
Methodology
Zonal statistics (sum) of the EDGAR gridded emissions (with a resolution of 0.1x0.1 degree) and the urban centres polygons. If a cell is fully inside a polygon, the 100% of emissions of that cell is allocated to the polygon itself. If a cell is partly ins
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance and sector
Attribute ID
EM_PM2_WAS_XXXX
Indicator Name
Total PM2.5 emissions in waste sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
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Indicator description
Total PM2.5 emissions in waste sector
Methodology
Zonal statistics (sum) of the EDGAR gridded emissions (with a resolution of 0.1x0.1 degree) and the urban centres polygons. If a cell is fully inside a polygon, the 100% of emissions of that cell is allocated to the polygon itself. If a cell is partly ins
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per sector
Attribute ID
EM_AGR_TOT_XXXX
Indicator Name
Total emissions in agriculture sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
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Indicator description
Total emissions in agriculture sector
Methodology
Sum of the emissions per substance in agricultural sector
Methodology Short
Sum
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per sector
Attribute ID
EM_ENE_TOT_XXXX
Indicator Name
Total emissions in energy sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
<u>EDGAR v8.1 air pollutant emissions: https://edgar.jrc.ec.europa.eu/dataset_ap81</u>
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Indicator description
Total emissions in energy sector
Methodology
Sum of the emissions per substance in energy sector
Methodology Short
Sum
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per sector
Attribute ID
EM_IND_TOT_XXXX
Indicator Name
Total emissions in industry sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
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Indicator description
Total emissions in industry sector
Methodology
Sum of the emissions per substance in industry sector
Methodology Short
Sum
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per sector
Attribute ID
EM_RES_TOT_XXXX
Indicator Name
Total emissions in residential sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
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Indicator description
Total emissions in residential sector
Methodology
Sum of the emissions per substance in residential sector
Methodology Short
Sum
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per sector
Attribute ID
EM_TRA_TOT_XXXX
Indicator Name
Total emissions in transport sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
<u>EDGAR v8.1 air pollutant emissions: https://edgar.jrc.ec.europa.eu/dataset_ap81</u>
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Indicator description
Total emissions in transport sector
Methodology
Sum of the emissions per substance in transport sector
Methodology Short
Sum
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per sector
Attribute ID
EM_WAS_TOT_XXXX
Indicator Name
Total emissions in waste sector
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
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Indicator description
Total emissions in waste sector
Methodology
Sum of the emissions per substance in waste sector
Methodology Short
Sum
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance
Attribute ID
EM_CO2_TOT_XXXX
Indicator Name
Total CO2 emissions in all sectors
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO2, EDGAR CH4, EDGAR N2O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
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Indicator description
Total CO2 emissions in all sectors
Methodology
Sum of the CO2 emissions in all sectors
Methodology Short
Sum
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance
Attribute ID
EM_GHG_TOT_XXXX
Indicator Name
Total GHG emissions in all sectors
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
<u>EDGAR v8.1 air pollutant emissions: https://edgar.jrc.ec.europa.eu/dataset_ap81</u>
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Indicator description
Total GHG emissions in all sectors
Methodology
Sum of the GHG emissions in all sectors
Methodology Short
Sum
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance
Attribute ID
EM_NOX_TOT_XXXX
Indicator Name
Total NOx emissions in all sectors
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
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Indicator description
Total NOx emissions in all sectors
Methodology
Sum of the NOx emissions in all sectors
Methodology Short
Sum
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Total emissions per substance
Attribute ID
EM_PM2_TOT_XXXX
Indicator Name
Total PM2.5 emissions in all sectors
Units
ton/year
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
<u>EDGAR v8.1 air pollutant emissions: https://edgar.jrc.ec.europa.eu/dataset_ap81</u>
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Indicator description
Total PM2.5 emissions in all sectors
Methodology
Sum of the PM2.5 emissions in all sectors
Methodology Short
Sum
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Share of emissions per substance
Attribute ID
EM_CO2_PER_XXXX
Indicator Name
Share of CO2 emissions over total emissions
Units
%
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO2, EDGAR CH4, EDGAR N2O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
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Indicator description
Share of CO2 emissions over total emissions
Methodology
Ratio between CO2 emissions (in all sectors) and total emissions (for all substances and sectors)
Methodology Short
Ratio
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Share of emissions per substance
Attribute ID
EM_GHG_PER_XXXX
Indicator Name
Share of GHG emissions over total emissions
Units
%
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
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Indicator description
Share of GHG emissions over total emissions
Methodology
Ratio between GHG emissions (in all sectors) and total emissions (for all substances and sectors)
Methodology Short
Ratio
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Share of emissions per substance
Attribute ID
EM_NOX_PER_XXXX
Indicator Name
Share of NOX emissions over total emissions
Units
%
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
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Indicator description
Share of NOX emissions over total emissions
Methodology
Ratio between NOX emissions (in all sectors) and total emissions (for all substances and sectors)
Methodology Short
Ratio
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Share of emissions per substance
Attribute ID
EM_PM2_PER_XXXX
Indicator Name
Share of PM2 emissions over total emissions
Units
%
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
<u>EDGAR v8.1 air pollutant emissions: https://edgar.jrc.ec.europa.eu/dataset_ap81</u>
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Indicator description
Share of PM2 emissions over total emissions
Methodology
Ratio between PM2 emissions (in all sectors) and total emissions (for all substances and sectors)
Methodology Short
Ratio
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Share of emissions per sector
Attribute ID
EM_AGR_PER_XXXX
Indicator Name
Share of agricultural emissions over total emissions
Units
%
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
<u>EDGAR v8.1 air pollutant emissions: https://edgar.jrc.ec.europa.eu/dataset_ap81</u>
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Indicator description
Share of agricultural emissions over total emissions
Methodology
Ratio between agricultural emissions (all substances) and total emissions (for all substances and sectors)
Methodology Short
Ratio
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Share of emissions per sector
Attribute ID
EM_ENE_PER_XXXX
Indicator Name
Share of energy emissions over total emissions
Units
%
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
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Indicator description
Share of energy emissions over total emissions
Methodology
Ratio between energy emissions (all substances) and total emissions (for all substances and sectors)
Methodology Short
Ratio
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Share of emissions per sector
Attribute ID
EM_IND_PER_XXXX
Indicator Name
Share of industry emissions over total emissions
Units
%
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
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Indicator description
Share of industry emissions over total emissions
Methodology
Ratio between industry emissions (all substances) and total emissions (for all substances and sectors)
Methodology Short
Ratio
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Share of emissions per sector
Attribute ID
EM_RES_PER_XXXX
Indicator Name
Share of residential emissions over total emissions
Units
%
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
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Indicator description
Share of residential emissions over total emissions
Methodology
Ratio between residential emissions (all substances) and total emissions (for all substances and sectors)
Methodology Short
Ratio
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Share of emissions per sector
Attribute ID
EM_TRA_PER_XXXX
Indicator Name
Share of transport emissions over total emissions
Units
%
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
<u>EDGAR v8.1 air pollutant emissions: https://edgar.jrc.ec.europa.eu/dataset_ap81</u>
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Indicator description
Share of transport emissions over total emissions
Methodology
Ratio between transport emissions (all substances) and total emissions (for all substances and sectors)
Methodology Short
Ratio
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Share of emissions per sector
Attribute ID
EM_WAS_PER_XXXX
Indicator Name
Share of waste emissions over total emissions
Units
%
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
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Indicator description
Share of waste emissions over total emissions
Methodology
Ratio between waste emissions (all substances) and total emissions (for all substances and sectors)
Methodology Short
Ratio
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020, 2022
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Emissions per capita
Attribute ID
EM_CO2_PEC_XXXX
Indicator Name
CO2 emissions per capita
Units
ton year ⁻¹ inhabitant ⁻¹
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO2, EDGAR CH4, EDGAR N2O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
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Indicator description
CO2 emissions per capita
Methodology
Ration between CO2 emissions and total population in the urban centre.
Methodology Short
Ratio
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Emissions per capita
Attribute ID
EM_GHG_PEC_XXXX
Indicator Name
GHG emissions per capita
Units
ton year ⁻¹ inhabitant ⁻¹
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
<u>EDGAR v8.1 air pollutant emissions: https://edgar.jrc.ec.europa.eu/dataset_ap81</u>
Crippa, M., Guizzardi, D., Pagani, F., Schiavina, M., Melchiorri, M., Pisoni, E., Graziosi, F., Muntean, M., Maes, J., Dijkstra, L., Van Damme, M., Clarisse, L., and Coheur, P.: Insights into the spatial distribution of global, national, and subnational greenhouse gas emissions in the Emissions Database for Global Atmospheric Research (EDGAR v8.0), Earth Syst. Sci. Data, 16, 2811–2830, doi:10.5194/essd-16-2811-2024, 2024.
Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CF
Indicator description
GHG emissions per capita
Methodology
Ration between GHG emissions and total population in the urban centre.
Methodology Short
Ratio
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Emissions per capita
Attribute ID
EM_NOX_PEC_XXXX
Indicator Name
NOX emissions per capita
Units
ton year ⁻¹ inhabitant ⁻¹
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
<u>EDGAR v8.1 air pollutant emissions: https://edgar.jrc.ec.europa.eu/dataset_ap81</u>
Crippa, M., Guizzardi, D., Pagani, F., Schiavina, M., Melchiorri, M., Pisoni, E., Graziosi, F., Muntean, M., Maes, J., Dijkstra, L., Van Damme, M., Clarisse, L., and Coheur, P.: Insights into the spatial distribution of global, national, and subnational greenhouse gas emissions in the Emissions Database for Global Atmospheric Research (EDGAR v8.0), Earth Syst. Sci. Data, 16, 2811–2830, doi:10.5194/essd-16-2811-2024, 2024.
Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CF
Indicator description
NOX emissions per capita
Methodology
Ration between NOX emissions and total population in the urban centre.
Methodology Short
Ratio
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices

Indicator thematic area
Emissions
Indicator Group
Emissions per capita
Attribute ID
EM_PM2_PEC_XXXX
Indicator Name
PM 2.5 emissions per capita
Units
ton year ⁻¹ inhabitant ⁻¹
Data Source
EDGAR (Emissions Database for Global Atmospheric Research) Community GHG Database, a collaboration between the European Commission, Joint Research Centre (JRC), the International Energy Agency (IEA), and comprising IEA-EDGAR CO ₂ , EDGAR CH ₄ , EDGAR N ₂ O, EDGAR F-GASES version 8.0, (2023) European Commission, JRC (Datasets). https://edgar.jrc.ec.europa.eu/report_2023 , https://edgar.jrc.ec.europa.eu/dataset_ghg80
<u>EDGAR v8.1 air pollutant emissions: https://edgar.jrc.ec.europa.eu/dataset_ap81</u>
Crippa, M., Guizzardi, D., Pagani, F., Schiavina, M., Melchiorri, M., Pisoni, E., Graziosi, F., Muntean, M., Maes, J., Dijkstra, L., Van Damme, M., Clarisse, L., and Coheur, P.: Insights into the spatial distribution of global, national, and subnational greenhouse gas emissions in the Emissions Database for Global Atmospheric Research (EDGAR v8.0), Earth Syst. Sci. Data, 16, 2811–2830, doi:10.5194/essd-16-2811-2024, 2024.
Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CF
Indicator description
PM 2.5 emissions per capita
Methodology
Ration between PM 2.5 emissions and total population in the urban centre.
Methodology Short
Ratio
Temporal Coverage
1975, 1990, 2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices

Indicator Group
Emissions
Indicator Type
Concentrations
Indicator Code
EM_PM2_CON_XXXX
Indicator Name
PM2.5 population weighted average concentrations
Units
$\mu\text{g}/\text{m}^3$
Data Source
<p>Shen, S. Li, C. van Donkelaar, A. Jacobs, N. Wang, C. Martin, R. V.: Enhancing Global Estimation of Fine Particulate Matter Concentrations by Including Geophysical a Priori Information in Deep Learning. (2024) ACS ES&T Air. DOI: 10.1021/acsestair.3c00054 https://pubmed.ncbi.nlm.nih.gov/38751607/</p> <p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cfe, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p>
Indicator description
Yearly population weighted average PM2.5 concentrations
Methodology
Estimated annual ground-level fine particulate matter (PM2.5) for 2000-2020 as provided at https://sites.wustl.edu/acag/datasets/surface-pm2-5/#V6.GL.02 . The dataset is produced combining Aerosol Optical Depth (AOD) retrievals from the NASA MODIS, MISR, SeaWiFS, and VIIRS with the GEOS-Chem chemical transport model, and subsequently calibrating to global ground-based observations using a residual Convolutional Neural Network (CNN). Dataset version V6.GL.02.02. The dataset (at 1km resolution) is overlapped with the GHSL 1km global population (GHS_POP_GLOBE_R2023A) and the UCDB, to compute population weighted PM2.5 concentrations.
Methodology Short
Modelled
Temporal Coverage
2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices

Indicator Group
Emissions
Indicator Type
Mortality
Indicator Code
EM_PM2_MOR_XXXX
Indicator Name
Premature deaths due to PM2.5 concentrations
Units
Number of premature deaths
Data Source
WHO mortality database: https://www.who.int/data/data-collection-tools/who-mortality-database
Murray, C.J.L. et al., 2020. Global burden of 87 risk factors in 204 countries and territories, 1990 - 2013;2019: a systematic analysis for the Global Burden of Disease Study 2019. <i>The Lancet</i> 396:1223-1249. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30752-2/fulltext
Belis, C.A., Matkovic, V., Ballocchi, M., Jevtic, M., Millo, G., Mata, E., Van Dingenen, R., 2023. Assessment of health impacts and costs attributable to air pollution in urban areas using two different approaches. A case study in the Western Balkans. <i>Environment International</i> 182, 108347. https://doi.org/10.1016/j.envint.2023.108347
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Indicator description
PM2.5 related premature deaths
Methodology
Estimation of the premature deaths according to integrated exposure response curves (IER) from the Global Burden of Disease methodology (Murray et al., 2020) as implemented in the JRC FAst Scenario Screening Tool (FASST, Belis et al., 2023)
Premature deaths attributable to PM2.5 were estimated starting from PM2.5 concentrations, city population and country mortality rates from WHO mortality database.
Methodology Short
Modelled
Temporal Coverage
2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Floods
Attribute ID
EX_010_POP_XXXX
Indicator Name
People exposed to floods (10 years return period)
Units
number of inhabitants
Data Source
Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cfe , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE
Baugh, Calum; Colonese, Juan; D'Angelo, Claudia; Francesco, Dottori; Neal, Jeffrey; Prudhomme; Christe; Salamon, Peter (2024): Modelled flood inundation for different return period scenarios at the global scale. European Commission, Joint Research Centre (JRC) https://jeodpp.jrc.ec.europa.eu/ftp/jrc-opendata/CEMS-GLOFAS/flood_hazard/
Indicator description
Number of people exposed to floods (10 years return period)
Methodology
Zonal sum of the GHS-POP R2023A pixel values inside the urban center, masked by the 10 yr flood hazard map (1 - flood, 0 - no flood).
Methodology Short
Zonal Statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Floods
Attribute ID
EX_100_POP_XXXX
Indicator Name
People exposed to floods (100 years return period)
Units
number of inhabitants
Data Source
Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cfe , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE
Baugh, Calum; Colonese, Juan; D'Angelo, Claudia; Francesco, Dottori; Neal, Jeffrey; Prudhomme; Christe; Salamon, Peter (2024): Modelled flood inundation for different return period scenarios at the global scale. European Commission, Joint Research Centre (JRC) https://jeodpp.jrc.ec.europa.eu/ftp/jrc-opendata/CEMS-GLOFAS/flood_hazard/
Indicator description
Number of people exposed to floods (100 years return period)
Methodology
Zonal sum of the GHS-POP R2023A pixel values inside the urban center, masked by the 100 yr flood hazard map (1 - flood, 0 - no flood).
Methodology Short
Zonal Statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Floods
Attribute ID
EX_010_SHP_XXXX
Indicator Name
Share of People exposed to floods (100 years return period)
Units
%
Data Source
Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cfe , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE
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Indicator description
Share of people exposed to floods (10 years return period) over the total urban center population
Methodology
Percentage of population exposed over total population in the urban center.
Methodology Short
Ratio
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Floods
Attribute ID
EX_100_SHP_XXXX
Indicator Name
Share of People exposed to floods (10 years return period)
Units
%
Data Source
Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cfe , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE
Baugh, Calum; Colonese, Juan; D'Angelo, Claudia; Francesco, Dottori; Neal, Jeffrey; Prudhomme; Christe; Salamon, Peter (2024): Modelled flood inundation for different return period scenarios at the global scale. European Commission, Joint Research Centre (JRC) https://jeodpp.jrc.ec.europa.eu/ftp/jrc-opendata/CEMS-GLOFAS/flood_hazard/
Indicator description
Share of people exposed to floods (100 years return period) over the total urban center population
Methodology
Percentage of population exposed over total population in the urban center.
Methodology Short
Ratio
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Floods
Attribute ID
EX_010_BUS_XXXX
Indicator Name
Built-up surface exposed to floods (10 years return period)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Baugh, Calum; Colonese, Juan; D'Angelo, Claudia; Francesco, Dottori; Neal, Jeffrey; Prudhomme; Christe; Salamon, Peter (2024): Modelled flood inundation for different return period scenarios at the global scale. European Commission, Joint Research Centre (JRC) https://jeodpp.jrc.ec.europa.eu/ftp/jrc-opendata/CEMS-GLOFAS/flood_hazard/</p>
Indicator description
Built-up surface exposed to floods (10 years return period)
Methodology
Zonal sum of the GHS-BUILT-S R2023A pixel values inside the urban center, masked by the 10 yr flood hazard map (1 - flood, 0 - no flood).
Methodology Short
Zonal Statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Floods
Attribute ID
EX_100_BUS_XXXX
Indicator Name
Built-up surface exposed to floods (100 years return period)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Baugh, Calum; Colonese, Juan; D'Angelo, Claudia; Francesco, Dottori; Neal, Jeffrey; Prudhomme; Christe; Salamon, Peter (2024): Modelled flood inundation for different return period scenarios at the global scale. European Commission, Joint Research Centre (JRC) https://jeodpp.jrc.ec.europa.eu/ftp/jrc-opendata/CEMS-GLOFAS/flood_hazard/</p>
Indicator description
Built-up surface exposed to floods (100 years return period)
Methodology
Zonal sum of the GHS-BUILT-S R2023A pixel values inside the urban center, masked by the 100 yr flood hazard map (1 - flood, 0 - no flood).
Methodology Short
Zonal Statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Floods
Attribute ID
EX_010_SHB_XXXX
Indicator Name
Share of built-up surface exposed to floods (10 years return period)
Units
%
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Baugh, Calum; Colonese, Juan; D'Angelo, Claudia; Francesco, Dottori; Neal, Jeffrey; Prudhomme; Christe; Salamon, Peter (2024): Modelled flood inundation for different return period scenarios at the global scale. European Commission, Joint Research Centre (JRC) https://jeodpp.jrc.ec.europa.eu/ftp/jrc-opendata/CEMS-GLOFAS/flood_hazard/</p>
Indicator description
Share of built-up surface exposed to floods (10 years return period) over the total urban center built-up surface
Methodology
Percentage of built-up surface exposed over total built-up in the urban center.
Methodology Short
Ratio
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Floods
Attribute ID
EX_100_SHB_XXXX
Indicator Name
Share of built-up surface exposed to floods (100 years return period)
Units
%
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Baugh, Calum; Colonese, Juan; D'Angelo, Claudia; Francesco, Dottori; Neal, Jeffrey; Prudhomme; Christe; Salamon, Peter (2024): Modelled flood inundation for different return period scenarios at the global scale. European Commission, Joint Research Centre (JRC) https://jeodpp.jrc.ec.europa.eu/ftp/jrc-opendata/CEMS-GLOFAS/flood_hazard/</p>
Indicator description
Share of built-up surface exposed to floods (100 years return period) over the total urban center built-up surface
Methodology
Percentage of built-up surface exposed over total built-up in the urban center.
Methodology Short
Ratio
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Floods
Attribute ID
EX_010_NRE_XXXX
Indicator Name
Non-residential built-up surface exposed to floods (10 years return period)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Baugh, Calum; Colonese, Juan; D'Angelo, Claudia; Francesco, Dottori; Neal, Jeffrey; Prudhomme; Christe; Salamon, Peter (2024): Modelled flood inundation for different return period scenarios at the global scale. European Commission, Joint Research Centre (JRC) https://jeodpp.jrc.ec.europa.eu/ftp/jrc-opendata/CEMS-GLOFAS/flood_hazard/</p>
Indicator description
Non-residential built-up surface exposed to floods (10 years return period)
Methodology
Zonal sum of the GHS-BUILT-S-NRES R2023A pixel values inside the urban center, masked by the 10 yr flood hazard map (1 - flood, 0 - no flood).
Methodology Short
Zonal Statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Floods
Attribute ID
EX_100_NRE_XXXX
Indicator Name
Non-residential built-up surface exposed to floods (100 years return period)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Baugh, Calum; Colonese, Juan; D'Angelo, Claudia; Francesco, Dottori; Neal, Jeffrey; Prudhomme; Christe; Salamon, Peter (2024): Modelled flood inundation for different return period scenarios at the global scale. European Commission, Joint Research Centre (JRC) https://jeodpp.jrc.ec.europa.eu/ftp/jrc-opendata/CEMS-GLOFAS/flood_hazard/</p>
Indicator description
Non-residential built-up surface exposed to floods (100 years return period)
Methodology
Zonal sum of the GHS-BUILT-S-NRE R2023A pixel values inside the urban center, masked by the 100 yr flood hazard map (1 - flood, 0 - no flood).
Methodology Short
Zonal Statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Floods
Attribute ID
EX_010_SNR_XXXX
Indicator Name
Share of non-residential built-up surface exposed to floods (10 years return period)
Units
%
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Baugh, Calum; Colonese, Juan; D'Angelo, Claudia; Francesco, Dottori; Neal, Jeffrey; Prudhomme; Christe; Salamon, Peter (2024): Modelled flood inundation for different return period scenarios at the global scale. European Commission, Joint Research Centre (JRC) https://jeodpp.jrc.ec.europa.eu/ftp/jrc-opendata/CEMS-GLOFAS/flood_hazard/</p>
Indicator description
Share of non-residential built-up surface exposed to floods (10 years return period) over the urban center non-residential built-up surface
Methodology
Percentage of non-residential built-up surface exposed over non-residential built-up in the urban center.
Methodology Short
Ratio
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Floods
Attribute ID
EX_100_SNR_XXXX
Indicator Name
Share of non-residential built-up surface exposed to floods (100 years return period)
Units
%
Data Source
Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea , doi: 10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA
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Indicator description
Share of non-residential built-up surface exposed to floods (100 years return period) over the I urban center non-residential built-up surface
Methodology
Percentage of non-residential built-up surface exposed over non-residential built-up in the urban center.
Methodology Short
Ratio
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_E01_POP_XXXX
Indicator Name
Population exposed to earthquakes (class 1 MMI)
Units
Number of inhabitants
Data Source
Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1 K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Population exposed to earthquakes (class 1 MMI)
Methodology
Zonal statistics (sum) of GHS-POP R2023A inside the urban center affected by seismic hazard class 1MMI
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_E02_POP_XXXX
Indicator Name
Population exposed to earthquakes (class 2-3 MMI)
Units
Number of inhabitants
Data Source
Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1 K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Population exposed to earthquakes (class 2-3 MMI)
Methodology
Zonal statistics (sum) of GHS-POP R2023A inside the urban center affected by seismic hazard class 2-3 MMI
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_E04_POP_XXXX
Indicator Name
Population exposed to earthquakes (class 4 MMI)
Units
Number of inhabitants
Data Source
Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1 K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Population exposed to earthquakes (class 4 MMI)
Methodology
Zonal statistics (sum) of GHS-POP R2023A inside the urban center affected by seismic hazard class 4 MMI
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_E05_POP_XXXX
Indicator Name
Population exposed to earthquakes (class 5 MMI)
Units
Number of inhabitants
Data Source
Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1 K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Population exposed to earthquakes (class 5 MMI)
Methodology
Zonal statistics (sum) of GHS-POP R2023A inside the urban center affected by seismic hazard class 5 MMI
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_E06_POP_XXXX
Indicator Name
Population exposed to earthquakes (class 6 MMI)
Units
Number of inhabitants
Data Source
Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1 K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Population exposed to earthquakes (class 6 MMI)
Methodology
Zonal statistics (sum) of GHS-POP R2023A inside the urban center affected by seismic hazard class 6 MMI
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_E07_POP_XXXX
Indicator Name
Population exposed to earthquakes (class 7 MMI)
Units
Number of inhabitants
Data Source
Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1 K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Population exposed to earthquakes (class 7 MMI)
Methodology
Zonal statistics (sum) of GHS-POP R2023A inside the urban center affected by seismic hazard class 7 MMI
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_E08_POP_XXXX
Indicator Name
Population exposed to earthquakes (class 8 MMI)
Units
Number of inhabitants
Data Source
Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1 K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Population exposed to earthquakes (class 8 MMI)
Methodology
Zonal statistics (sum) of GHS-POP R2023A inside the urban center affected by seismic hazard class 8 MMI
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_E09_POP_XXXX
Indicator Name
Population exposed to earthquakes (class 9 MMI)
Units
Number of inhabitants
Data Source
Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1 K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Population exposed to earthquakes (class 9 MMI)
Methodology
Zonal statistics (sum) of GHS-POP R2023A inside the urban center affected by seismic hazard class 9 MMI
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_E10_POP_XXXX
Indicator Name
Population exposed to earthquakes (class 10 MMI)
Units
Number of inhabitants
Data Source
Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1 K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Population exposed to earthquakes (class 10 MMI)
Methodology
Zonal statistics (sum) of GHS-POP R2023A inside the urban center affected by seismic hazard class 10 MMI
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_SHA_POP_XXXX
Indicator Name
Share of population exposed to earthquakes (class equal or greater than 6 MMI)
Units
%
Data Source
Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1 K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Share of population exposed to earthquakes (class equal or greater than 6 MMI)
Methodology
Percentage of population exposed to earthquakes (class equal or greater than 6 MMI) over the total population of the urban center.
Methodology Short
Ratio
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_E01_BUS_XXXX
Indicator Name
Total built-up exposed to earthquakes (class 1 MMI)
Units
m ²
Data Source
Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030)European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea , doi: 10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1 K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Built-up exposed to earthquakes (class 1 MMI)
Methodology
Zonal statistics (sum) of GHS-BUILT-S R2023A inside the urban center affected by seismic hazard class 1 MMI
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_E02_BUS_XXXX
Indicator Name
Total built-up exposed to earthquakes (class 2-3 MMI)
Units
m ²
Data Source
Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030)European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea , doi: 10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1 K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Built-up exposed to earthquakes (class 2-3 MMI)
Methodology
Zonal statistics (sum) of GHS-BUILT-S R2023A inside the urban center affected by seismic hazard class 2-3 MMI
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_E04_BUS_XXXX
Indicator Name
Total built-up exposed to earthquakes (class 4 MMI)
Units
m ²
Data Source
Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030)European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea , doi: 10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1 K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Built-up exposed to earthquakes (class 4 MMI)
Methodology
Zonal statistics (sum) of GHS-BUILT-S R2023A inside the urban center affected by seismic hazard class 4 MMI
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_E05_BUS_XXXX
Indicator Name
Total built-up exposed to earthquakes (class 5 MMI)
Units
m ²
Data Source
Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030)European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea , doi: 10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1 K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Built-up exposed to earthquakes (class 5 MMI)
Methodology
Zonal statistics (sum) of GHS-BUILT-S R2023A inside the urban center affected by seismic hazard class 5 MMI
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_E06_BUS_XXXX
Indicator Name
Total built-up exposed to earthquakes (class 6 MMI)
Units
m ²
Data Source
Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030)European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea , doi: 10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1 K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Built-up exposed to earthquakes (class 6 MMI)
Methodology
Zonal statistics (sum) of GHS-BUILT-S R2023A inside the urban center affected by seismic hazard class 6 MMI
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_E07_BUS_XXXX
Indicator Name
Total built-up exposed to earthquakes (class 7 MMI)
Units
m ²
Data Source
Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030)European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea , doi: 10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1 K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Built-up exposed to earthquakes (class 7 MMI)
Methodology
Zonal statistics (sum) of GHS-BUILT-S R2023A inside the urban center affected by seismic hazard class 7 MMI
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_E08_BUS_XXXX
Indicator Name
Total built-up exposed to earthquakes (class 8 MMI)
Units
m ²
Data Source
Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030)European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea , doi: 10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1 K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Built-up exposed to earthquakes (class 8 MMI)
Methodology
Zonal statistics (sum) of GHS-BUILT-S R2023A inside the urban center affected by seismic hazard class 8 MMI
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_E09_BUS_XXXX
Indicator Name
Total built-up exposed to earthquakes (class 9 MMI)
Units
m ²
Data Source
Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030)European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea , doi: 10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1 K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Built-up exposed to earthquakes (class 9 MMI)
Methodology
Zonal statistics (sum) of GHS-BUILT-S R2023A inside the urban center affected by seismic hazard class 9 MMI
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_E10_BUS_XXXX
Indicator Name
Total built-up exposed to earthquakes (class 10 MMI)
Units
m ²
Data Source
Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030)European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea , doi: 10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1 K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Built-up exposed to earthquakes (class 10 MMI)
Methodology
Zonal statistics (sum) of GHS-BUILT-S R2023A inside the urban center affected by seismic hazard class 10 MMI
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_SHA_BUS_XXXX
Indicator Name
Share of total built-up exposed to earthquakes (class equal or greater than 6 MMI)
Units
%
Data Source
Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030)European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea , doi: 10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1 K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Share of total built-up exposed to earthquakes (class equal or greater than 6 MMI)
Methodology
Percentage of total built-up exposed to earthquakes (class equal or greater than 6 MMI) over the total built-up of the urban center.
Methodology Short
Ratio
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_E01_NRE_XXXX
Indicator Name
Non-residential built-up exposed to earthquakes (class 1 MMI)
Units
m ²
Data Source
Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030)European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea , doi: 10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1 K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Non-residential built-up exposed to earthquakes (class 1 MMI)
Methodology
Zonal statistics (sum) of GHS-BUILT-S-NRES R2023A inside the urban center affected by seismic hazard class 1 MMI
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_E02_NRE_XXXX
Indicator Name
Non-residential built-up exposed to earthquakes (class 2-3 MMI)
Units
m ²
Data Source
Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030)European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea , doi: 10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1 K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Non-residential built-up exposed to earthquakes (class 2-3 MMI)
Methodology
Zonal statistics (sum) of GHS-BUILT-S-NRES R2023A inside the urban center affected by seismic hazard classes 2-3 MMI
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_E04_NRE_XXXX
Indicator Name
Non-residential built-up exposed to earthquakes (class 4 MMI)
Units
m ²
Data Source
Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030)European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea , doi: 10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1 K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Non-residential built-up exposed to earthquakes (class 4 MMI)
Methodology
Zonal statistics (sum) of GHS-BUILT-S-NRES R2023A inside the urban center affected by seismic hazard class 4 MMI
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_E05_NRE_XXXX
Indicator Name
Non-residential built-up exposed to earthquakes (class 5 MMI)
Units
m ²
Data Source
Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030)European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea , doi: 10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1 K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Non-residential built-up exposed to earthquakes (class 5 MMI)
Methodology
Zonal statistics (sum) of GHS-BUILT-S-NRES R2023A inside the urban center affected by seismic hazard class 5 MMI
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_E06_NRE_XXXX
Indicator Name
Non-residential built-up exposed to earthquakes (class 6 MMI)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030)European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p>
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1
K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Non-residential built-up exposed to earthquakes (class 6 MMI)
Methodology
Zonal statistics (sum) of GHS-BUILT-S-NRES R2023A inside the urban center affected by seismic hazard class 6 MMI
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_E07_NRE_XXXX
Indicator Name
Non-residential built-up exposed to earthquakes (class 7 MMI)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030)European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p>
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1
K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Non-residential built-up exposed to earthquakes (class 7 MMI)
Methodology
Zonal statistics (sum) of GHS-BUILT-S-NRES R2023A inside the urban center affected by seismic hazard class 7 MMI
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_E08_NRE_XXXX
Indicator Name
Non-residential built-up exposed to earthquakes (class 8 MMI)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030)European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p>
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1
K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Non-residential built-up exposed to earthquakes (class 8 MMI)
Methodology
Zonal statistics (sum) of GHS-BUILT-S-NRES R2023A inside the urban center affected by seismic hazard class 8 MMI
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_E09_NRE_XXXX
Indicator Name
Non-residential built-up exposed to earthquakes (class 9 MMI)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030)European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p>
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1
K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Non-residential built-up exposed to earthquakes (class 9 MMI)
Methodology
Zonal statistics (sum) of GHS-BUILT-S-NRES R2023A inside the urban center affected by seismic hazard class 9 MMI
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_E10_NRE_XXXX
Indicator Name
Non-residential built-up exposed to earthquakes (class 10 MMI)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030)European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p>
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1 K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Non-residential built-up exposed to earthquakes (class 10 MMI)
Methodology
Zonal statistics (sum) of GHS-BUILT-S-NRES R2023A inside the urban center affected by seismic hazard class 10 MMI
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Earthquake
Attribute ID
EX_SHA_RES_XXXX
Indicator Name
Share of non-residential built-up exposed to earthquakes (class equal or greater than 6 MMI)
Units
%
Data Source
Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030)European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea , doi: 10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA
GEM GLOBAL SEISMIC HAZARD MAP version 2023.1 K. Johnson, M. Villani, K. Bayliss, C. Brooks, S. Chandrasekhar, T. Chartier, Y. Chen, J. Garcia-Pelaez, R. Gee, R. Styron, A. Rood, M. Simionato, M. Pagani (2023). Global Earthquake Model (GEM) Seismic Hazard Map (version 2023.1 - June 2023), DOI: https://doi.org/10.5281/zenodo.8409647
Indicator description
Share of non-residential built-up exposed to earthquakes (class equal or greater than 6 MMI)
Methodology
Percentage of non-residential built-up exposed to earthquakes (class equal or greater than 6 MMI) over the total built-up of the urban center.
Methodology Short
Ratio
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L05_POP_XXXX
Indicator Name
Population living below 5 m LECZ
Units
Number of inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Population living in the areas of the urban center which elevation is 5 m above the sea level
Methodology
Zonal sum of the GHS-POP R2023A pixel values inside the urban center masked by the LECZ layer (5 m above the sea level).
Methodology Short
Zonal Statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L10_POP_XXXX
Indicator Name
Population living between 5 and 10 m LECZ
Units
Number of inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Population living in the areas of the urban center which elevation is between 5 and 10m above the sea level
Methodology
Zonal sum of the GHS-POP R2023A pixel values inside the urban center masked by the LECZ layer (10 m above the sea level).
Methodology Short
Zonal Statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L05_SHP_XXXX
Indicator Name
Share of population living below 5 m LECZ
Units
%
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p>
<p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Share of population living in the areas of the urban center which elevation is 5 m above the sea level
Methodology
Percentage of population living inside the urban center area situated 5 m above the sea level over the total urban center population.
Methodology Short
Ratio
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L10_SHP_XXXX
Indicator Name
Share of population living between 5 and 10 m LECZ
Units
%
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Share of population living in the areas of the urban center which elevation is between 5 and 10 m above the sea level
Methodology
Percentage of population living inside the urban center area situated between 5 and 10 m above the sea level over the total urban center population.
Methodology Short
Ratio
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_LEC_SHP_XXXX
Indicator Name
Share of population living below 10 m LECZ
Units
%
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Share of population living in the areas of the urban center which elevation is below 10 m above the sea level.
Methodology
Percentage of population living inside the urban center area situated below 10 m above the sea level over the total urban center population.
Methodology Short
Ratio
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L05_BUS_XXXX
Indicator Name
Total Built-up situated below 5 m LECZ
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Total built-up area in the areas of the urban center which elevation is below 5m above the sea level.
Methodology
Zonal sum of the GHS-BUILT-S R2023A pixel values inside the urban center masked by the LECZ layer (5 m above the sea level).
Methodology Short
Zonal Statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L10_BUS_XXXX
Indicator Name
Total Built-up situated between 5 and 10m LECZ
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Total built-up area in the areas of the urban center which elevation is between 5 and 10m above the sea level.
Methodology
Zonal sum of the GHS-BUILT-S R2023A pixel values inside the urban center masked by the LECZ layer (10 m above the sea level).
Methodology Short
Zonal Statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LEcz)
Attribute ID
EX_L05_SHB_XXXX
Indicator Name
Share of total built-up below 5 m LECZ
Units
%
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LEcz) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Share of total built-up in the areas of the urban center which elevation is below 5 m above the sea level.
Methodology
Percentage of total built-up in the urban center area situated below 5 m above the sea level over the total urban center built-up.
Methodology Short
Ratio
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L10_SHB_XXXX
Indicator Name
Share of total built-up between 5 and 10 m LECZ
Units
%
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Share of total built-up in the areas of the urban center which elevation is between 5 and 10 m above the sea level.
Methodology
Percentage of total built-up in the urban center area situated between 5 and 10 m above the sea level over the total urban center built-up.
Methodology Short
Ratio
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_LEC_SHB_XXXX
Indicator Name
Share of total built-up below 10 m LECZ
Units
%
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Share of total built-up in the areas of the urban center which elevation is below 10 m above the sea level.
Methodology
Percentage of total built-up in the urban center area situated below 10 m above the sea level over the total urban center built-up.
Methodology Short
Ratio
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L05_NRE_XXXX
Indicator Name
Non-residential Built-up situated below 5 m LECZ
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Non-residential built-up area in the areas of the urban center which elevation is below 5m above the sea level.
Methodology
Zonal sum of the GHS-BUILT-S-NRES R2023A pixel values inside the urban center masked by the LECZ layer (5 m above the sea level).
Methodology Short
Zonal Statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L10_NRE_XXXX
Indicator Name
Non-residential built-up situated between 5 and 10m LECZ
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Non-residential built-up area in the areas of the urban center which elevation is between 5 and 10m above the sea level.
Methodology
Zonal sum of the GHS-BUILT-S-NRES R2023A pixel values inside the urban center masked by the LECZ layer (10 m above the sea level).
Methodology Short
Zonal Statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L05_SNR_XXXX
Indicator Name
Share of non-residential built-up below 5 m LECZ
Units
%
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Share of non-residential built-up in the areas of the urban center which elevation is below 5 m above the sea level.
Methodology
Percentage of non-residential built-up in the urban center area situated below 5 m above the sea level over the total urban center non-residential built-up.
Methodology Short
Ratio
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L10_SNRLXXXX
Indicator Name
Share of non-residential built-up between 5 and 10 m LECZ
Units
%
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Share of non-residential built-up in the areas of the urban center which elevation is between 5 and 10 m above the sea level.
Methodology
Percentage of non-residential built-up in the urban center area situated between 5 and 10 m above the sea level over the total urban center non-residential built-up.
Methodology Short
Ratio
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_LEC_SNR_XXXX
Indicator Name
Share of non-residential built-up below 10 m LECZ
Units
%
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p>
<p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Share of non-residential built-up in the areas of the urban center which elevation is below 10 m above the sea level.
Methodology
Percentage of non-residential built-up in the urban center area situated below 10 m above the sea level over the total urban center non-residential built-up.
Methodology Short
Ratio
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LEcz)
Attribute ID
EX_L05_RES_XXXX
Indicator Name
Residential Built-up situated below 5 m LECZ
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LEcz) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Residential built-up area in the areas of the urban center which elevation is below 5m above the sea level.
Methodology
Subtraction total built-up in LEcz (5m above the sea level) minus non-residential built-up in LEcz (5m above the sea level)
Methodology Short
Subtraction
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LEcz)
Attribute ID
EX_L10_NRE_XXXX
Indicator Name
Residential built-up situated between 5 and 10m LEcz
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LEcz) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Non-residential built-up area in the areas of the urban center which elevation is between 5 and 10m above the sea level.
Methodology
Subtraction total built-up in LEcz (10 m above the sea level) minus non-residential built-up in LEcz (10 m above the sea level)
Methodology Short
Subtraction
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LEcz)
Attribute ID
EX_L05_SHR_XXXX
Indicator Name
Share of residential built-up below 5 m LECZ
Units
%
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LEcz) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Share of residential built-up in the areas of the urban center which elevation is below 5 m above the sea level.
Methodology
Percentage of residential built-up in the urban center area situated below 5 m above the sea level over the total urban center residential built-up.
Methodology Short
Ratio
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LEcz)
Attribute ID
EX_L10_SHR_XXXX
Indicator Name
Share of non-residential built-up between 5 and 10 m LECZ
Units
%
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LEcz) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Share of residential built-up in the areas of the urban center which elevation is between 5 and 10 m above the sea level.
Methodology
Percentage of residential built-up in the urban center area situated between 5 and 10 m above the sea level over the total urban center residential built-up.
Methodology Short
Ratio
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_LEC_SHR_XXXX
Indicator Name
Share of residential built-up below 10 m LECZ
Units
%
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Share of residential built-up in the areas of the urban center which elevation is below 10 m above the sea level.
Methodology
Percentage of residential built-up in the urban center area situated below 10 m above the sea level over the total urban center residential built-up.
Methodology Short
Ratio
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L05_P11_XXXX
Indicator Name
Population living in BUTYPE 11 (residential prevalent 1-2 floors) in LECZ (below 5m)
Units
Number of inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., Alessandra Carioli, Christina Corbane, Lewis Dijkstra, Pietro Florio, Hannah K. Friedrich, Jing Gao, Stefan Leyk, Linlin Lu, Luca Maffenini, Ines Mari-Rivero, Michele Melchiorri, Vasileios Syrris, Jamon Van Den Hoek & Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
<p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LE CZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Population living in BUTYPE class 11 (residential prevalent 1-2 floors) which elevation is 5 m above the sea level.
Methodology
Zonal sum of the GHS-POP R2023A pixel values inside the urban center masked by the BUTYPE layer class 11 and the LECZ layer (5 m above the sea level).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L05_P12_XXXX
Indicator Name
Population living in BUTYPE 12 (residential prevalent 3-7 floors) in LECZ (below 5m)
Units
Number of inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., Alessandra Carioli, Christina Corbane, Lewis Dijkstra, Pietro Florio, Hannah K. Friedrich, Jing Gao, Stefan Leyk, Linlin Lu, Luca Maffenini, Ines Mari-Rivero, Michele Melchiorri, Vasileios Syrris, Jamon Van Den Hoek & Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
<p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LE CZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Population living in BUTYPE class 12 (residential prevalent 3-7 floors) which elevation is 5 m above the sea level.
Methodology
Zonal sum of the GHS-POP R2023A pixel values inside the urban center masked by the BUTYPE layer class 12 and the LECZ layer (5 m above the sea level).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L05_P13_XXXX
Indicator Name
Population living in BUTYPE 13 (residential prevalent > 8 floors) in LECZ (below 5m)
Units
Number of inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., Alessandra Carioli, Christina Corbane, Lewis Dijkstra, Pietro Florio, Hannah K. Friedrich, Jing Gao, Stefan Leyk, Linlin Lu, Luca Maffenini, Ines Mari-Rivero, Michele Melchiorri, Vasileios Syrris, Jamon Van Den Hoek & Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
<p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LE CZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Population living in BUTYPE class 13 (residential prevalent > 8 floors) which elevation is 5 m above the sea level.
Methodology
Zonal sum of the GHS-POP R2023A pixel values inside the urban center masked by the BUTYPE layer class 13 and the LECZ layer (5 m above the sea level).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L05_P21_XXXX
Indicator Name
Population living in BUTYPE 21 (non-residential prevalent 1-2 floors) in LECZ (below 5m)
Units
Number of inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., Alessandra Carioli, Christina Corbane, Lewis Dijkstra, Pietro Florio, Hannah K. Friedrich, Jing Gao, Stefan Leyk, Linlin Lu, Luca Maffenini, Ines Mari-Rivero, Michele Melchiorri, Vasileios Syrris, Jamon Van Den Hoek & Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
<p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Population living in BUTYPE class 21 (non-residential prevalent 1-2 floors) which elevation is 5 m above the sea level.
Methodology
Zonal sum of the GHS-POP R2023A pixel values inside the urban center masked by the BUTYPE layer class 21 and the LECZ layer (5 m above the sea level).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L05_P22_XXXX
Indicator Name
Population living in BUTYPE 22 (non-residential prevalent 3-7 floors) in LECZ (below 5m)
Units
Number of inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., Alessandra Carioli, Christina Corbane, Lewis Dijkstra, Pietro Florio, Hannah K. Friedrich, Jing Gao, Stefan Leyk, Linlin Lu, Luca Maffenini, Ines Mari-Rivero, Michele Melchiorri, Vasileios Syrris, Jamon Van Den Hoek & Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
<p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Population living in BUTYPE class 22 (non-residential prevalent 3-7 floors) which elevation is 5 m above the sea level.
Methodology
Zonal sum of the GHS-POP R2023A pixel values inside the urban center masked by the BUTYPE layer class 22 and the LECZ layer (5 m above the sea level).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L05_P23_XXXX
Indicator Name
Population living in BUTYPE 23 (non-residential prevalent >8 floors) in LECZ (below 5m)
Units
Number of inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., Alessandra Carioli, Christina Corbane, Lewis Dijkstra, Pietro Florio, Hannah K. Friedrich, Jing Gao, Stefan Leyk, Linlin Lu, Luca Maffenini, Ines Mari-Rivero, Michele Melchiorri, Vasileios Syrris, Jamon Van Den Hoek & Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
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Indicator description
Population living in BUTYPE class 23 (non-residential prevalent >8 floors) which elevation is 5 m above the sea level.
Methodology
Zonal sum of the GHS-POP R2023A pixel values inside the urban center masked by the BUTYPE layer class 23 and the LECZ layer (5 m above the sea level).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L10_P11_XXXX
Indicator Name
Population living in BUTYPE 11 (residential prevalent 1-2 floors) in LECZ (between 5 and 10m)
Units
Number of inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., Alessandra Carioli, Christina Corbane, Lewis Dijkstra, Pietro Florio, Hannah K. Friedrich, Jing Gao, Stefan Leyk, Linlin Lu, Luca Maffenini, Ines Mari-Rivero, Michele Melchiorri, Vasileios Syrris, Jamon Van Den Hoek & Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
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Indicator description
Population living in BUTYPE class 11 (residential prevalent 1-2 floors) which elevation is between 5 and 10m above the sea level.
Methodology
Zonal sum of the GHS-POP R2023A pixel values inside the urban center masked by the BUTYPE layer class 11 and the LECZ layer (between 5 and 10m above the sea level).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L10_P12_XXXX
Indicator Name
Population living in BUTYPE 12 (residential prevalent 3-7 floors) in LECZ (between 5 and 10m)
Units
Number of inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., Alessandra Carioli, Christina Corbane, Lewis Dijkstra, Pietro Florio, Hannah K. Friedrich, Jing Gao, Stefan Leyk, Linlin Lu, Luca Maffenini, Ines Mari-Rivero, Michele Melchiorri, Vasileios Syrris, Jamon Van Den Hoek & Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
<p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LE CZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Population living in BUTYPE class 12 (residential prevalent 3-7 floors) which elevation is between 5 and 10m above the sea level.
Methodology
Zonal sum of the GHS-POP R2023A pixel values inside the urban center masked by the BUTYPE layer class 12 and the LECZ layer (between 5 and 10m above the sea level).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L10_P13_XXXX
Indicator Name
Population living in BUTYPE 13 (residential prevalent > 8 floors) in LECZ (between 5 and 10m)
Units
Number of inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., Alessandra Carioli, Christina Corbane, Lewis Dijkstra, Pietro Florio, Hannah K. Friedrich, Jing Gao, Stefan Leyk, Linlin Lu, Luca Maffenini, Ines Mari-Rivero, Michele Melchiorri, Vasileios Syrris, Jamon Van Den Hoek & Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
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Indicator description
Population living in BUTYPE class 13 (residential prevalent > 8 floors) which elevation is between 5 and 10m above the sea level.
Methodology
Zonal sum of the GHS-POP R2023A pixel values inside the urban center masked by the BUTYPE layer class 13 and the LECZ layer (between 5 and 10m above the sea level).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L10_P21_XXXX
Indicator Name
Population living in BUTYPE 21 (non-residential prevalent 1-2 floors) in LECZ (between 5 and 10m)
Units
Number of inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., Alessandra Carioli, Christina Corbane, Lewis Dijkstra, Pietro Florio, Hannah K. Friedrich, Jing Gao, Stefan Leyk, Linlin Lu, Luca Maffenini, Ines Mari-Rivero, Michele Melchiorri, Vasileios Syrris, Jamon Van Den Hoek & Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
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Indicator description
Population living in BUTYPE class 21 (non-residential prevalent 1-2 floors) which elevation is between 5 and 10m above the sea level.
Methodology
Zonal sum of the GHS-POP R2023A pixel values inside the urban center masked by the BUTYPE layer class 21 and the LECZ layer (between 5 and 10m above the sea level).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L10_P22_XXXX
Indicator Name
Population living in BUTYPE 22 (non-residential prevalent 3-7 floors) in LECZ (between 5 and 10m)
Units
Number of inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., Alessandra Carioli, Christina Corbane, Lewis Dijkstra, Pietro Florio, Hannah K. Friedrich, Jing Gao, Stefan Leyk, Linlin Lu, Luca Maffenini, Ines Mari-Rivero, Michele Melchiorri, Vasileios Syrris, Jamon Van Den Hoek & Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
<p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Population living in BUTYPE class 22 (non-residential prevalent 3-7 floors) which elevation is between 5 and 10m above the sea level.
Methodology
Zonal sum of the GHS-POP R2023A pixel values inside the urban center masked by the BUTYPE layer class 22 and the LECZ layer (between 5 and 10m above the sea level).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L10_P23_XXXX
Indicator Name
Population living in BUTYPE 23 (non-residential prevalent >8 floors) in LECZ (between 5 and 10m)
Units
Number of inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., Alessandra Carioli, Christina Corbane, Lewis Dijkstra, Pietro Florio, Hannah K. Friedrich, Jing Gao, Stefan Leyk, Linlin Lu, Luca Maffenini, Ines Mari-Rivero, Michele Melchiorri, Vasileios Syrris, Jamon Van Den Hoek & Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
<p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Population living in BUTYPE class 23 (non-residential prevalent >8 floors) which elevation is between 5 and 10m above the sea level.
Methodology
Zonal sum of the GHS-POP R2023A pixel values inside the urban center masked by the BUTYPE layer class 23 and the LECZ layer (between 5 and 10m above the sea level).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L05_B11_XXXX
Indicator Name
Total built-up in BUTYPE 11 (residential prevalent 1-3 floors) in LECZ (below 5m)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., Alessandra Carioli, Christina Corbane, Lewis Dijkstra, Pietro Florio, Hannah K. Friedrich, Jing Gao, Stefan Leyk, Linlin Lu, Luca Maffenini, Ines Mari-Rivero, Michele Melchiorri, Vasileios Syrris, Jamon Van Den Hoek & Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
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Indicator description
Total built-up in BUTYPE class 11 (residential prevalent 1-3 floors) which elevation is below 5m above the sea level.
Methodology
Zonal sum of the GHS-BUILT-S R2023A pixel values inside the urban center masked by the BUTYPE layer class 11 and the LECZ layer (below 5m above the sea level).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L05_B12_XXXX
Indicator Name
Total built-up in BUTYPE 12 (residential prevalent 3-7 floors) in LECZ (below 5m)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., Alessandra Carioli, Christina Corbane, Lewis Dijkstra, Pietro Florio, Hannah K. Friedrich, Jing Gao, Stefan Leyk, Linlin Lu, Luca Maffenini, Ines Mari-Rivero, Michele Melchiorri, Vasileios Syrris, Jamon Van Den Hoek & Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
<p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Total built-up in BUTYPE class 12 (residential prevalent 3-7 floors) which elevation is below 5m above the sea level.
Methodology
Zonal sum of the GHS-BUILT-S R2023A pixel values inside the urban center masked by the BUTYPE layer class 12 and the LECZ layer (below 5m above the sea level).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L05_B13_XXXX
Indicator Name
Total built-up in BUTYPE 13 (residential prevalent >8 floors) in LECZ (below 5m)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., Alessandra Carioli, Christina Corbane, Lewis Dijkstra, Pietro Florio, Hannah K. Friedrich, Jing Gao, Stefan Leyk, Linlin Lu, Luca Maffenini, Ines Mari-Rivero, Michele Melchiorri, Vasileios Syrris, Jamon Van Den Hoek & Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p> <p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Total built-up in BUTYPE class 13 (residential prevalent >8 floors) which elevation is below 5m above the sea level.
Methodology
Zonal sum of the GHS-BUILT-S R2023A pixel values inside the urban center masked by the BUTYPE layer class 13 and the LECZ layer (below 5m above the sea level).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L05_B21_XXXX
Indicator Name
Total built-up in BUTYPE 21 (non-residential prevalent 1-3 floors) in LECZ (below 5m)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., Alessandra Carioli, Christina Corbane, Lewis Dijkstra, Pietro Florio, Hannah K. Friedrich, Jing Gao, Stefan Leyk, Linlin Lu, Luca Maffenini, Ines Mari-Rivero, Michele Melchiorri, Vasileios Syrris, Jamon Van Den Hoek & Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
<p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Total built-up in BUTYPE class 21 (non-residential prevalent 1-3 floors) which elevation is below 5m above the sea level.
Methodology
Zonal sum of the GHS-BUILT-S R2023A pixel values inside the urban center masked by the BUTYPE layer class 21 and the LECZ layer (below 5m above the sea level).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L05_B22_XXXX
Indicator Name
Total built-up in BUTYPE 22 (non-residential prevalent 3-7 floors) in LECZ (below 5m)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., Alessandra Carioli, Christina Corbane, Lewis Dijkstra, Pietro Florio, Hannah K. Friedrich, Jing Gao, Stefan Leyk, Linlin Lu, Luca Maffenini, Ines Mari-Rivero, Michele Melchiorri, Vasileios Syrris, Jamon Van Den Hoek & Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
<p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Total built-up in BUTYPE class 22 (non-residential prevalent 3-7 floors) which elevation is below 5m above the sea level.
Methodology
Zonal sum of the GHS-BUILT-S R2023A pixel values inside the urban center masked by the BUTYPE layer class 22 and the LECZ layer (below 5m above the sea level).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L05_B23_XXXX
Indicator Name
Total built-up in BUTYPE 23 (non-residential prevalent >8 floors) in LECZ (below 5m)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., Alessandra Carioli, Christina Corbane, Lewis Dijkstra, Pietro Florio, Hannah K. Friedrich, Jing Gao, Stefan Leyk, Linlin Lu, Luca Maffenini, Ines Mari-Rivero, Michele Melchiorri, Vasileios Syrris, Jamon Van Den Hoek & Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p> <p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Total built-up in BUTYPE class 23 (non-residential prevalent >8 floors) which elevation is below 5m above the sea level.
Methodology
Zonal sum of the GHS-BUILT-S R2023A pixel values inside the urban center masked by the BUTYPE layer class 23 and the LECZ layer (below 5m above the sea level).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L10_B11_XXXX
Indicator Name
Total built-up in BUTYPE 11 (residential prevalent 1-3 floors) in LECZ (between 5 and 10m)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., Alessandra Carioli, Christina Corbane, Lewis Dijkstra, Pietro Florio, Hannah K. Friedrich, Jing Gao, Stefan Leyk, Linlin Lu, Luca Maffenini, Ines Mari-Rivero, Michele Melchiorri, Vasileios Syrris, Jamon Van Den Hoek & Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p> <p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Total built-up in BUTYPE class 11 (residential prevalent 1-3 floors) which elevation is between 5 and 10m above the sea level.
Methodology
Zonal sum of the GHS-BUILT-S R2023A pixel values inside the urban center masked by the BUTYPE layer class 11 and the LECZ layer (between 5 and 10m above the sea level).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L10_B12_XXXX
Indicator Name
Total built-up in BUTYPE 12 (residential prevalent 3-7 floors) in LECZ (between 5 and 10m)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., Alessandra Carioli, Christina Corbane, Lewis Dijkstra, Pietro Florio, Hannah K. Friedrich, Jing Gao, Stefan Leyk, Linlin Lu, Luca Maffenini, Ines Mari-Rivero, Michele Melchiorri, Vasileios Syrris, Jamon Van Den Hoek & Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p> <p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Total built-up in BUTYPE class 12 (residential prevalent 3-7 floors) which elevation is between 5 and 10m above the sea level.
Methodology
Zonal sum of the GHS-BUILT-S R2023A pixel values inside the urban center masked by the BUTYPE layer class 12 and the LECZ layer (between 5 and 10m above the sea level).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L10_B13_XXXX
Indicator Name
Total built-up in BUTYPE 13 (residential prevalent >8 floors) in LECZ (between 5 and 10m)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., Alessandra Carioli, Christina Corbane, Lewis Dijkstra, Pietro Florio, Hannah K. Friedrich, Jing Gao, Stefan Leyk, Linlin Lu, Luca Maffenini, Ines Mari-Rivero, Michele Melchiorri, Vasileios Syrris, Jamon Van Den Hoek & Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p> <p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Total built-up in BUTYPE class 13 (residential prevalent >8 floors) which elevation is between 5 and 10m above the sea level.
Methodology
Zonal sum of the GHS-BUILT-S R2023A pixel values inside the urban center masked by the BUTYPE layer class 13 and the LECZ layer (between 5 and 10m above the sea level).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L10_B21_XXXX
Indicator Name
Total built-up in BUTYPE 21 (non-residential prevalent 1-3 floors) in LECZ (between 5 and 10m)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., Alessandra Carioli, Christina Corbane, Lewis Dijkstra, Pietro Florio, Hannah K. Friedrich, Jing Gao, Stefan Leyk, Linlin Lu, Luca Maffenini, Ines Mari-Rivero, Michele Melchiorri, Vasileios Syrris, Jamon Van Den Hoek & Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p> <p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Total built-up in BUTYPE class 21 (non-residential prevalent 1-3 floors) which elevation is between 5 and 10m above the sea level.
Methodology
Zonal sum of the GHS-BUILT-S R2023A pixel values inside the urban center masked by the BUTYPE layer class 21 and the LECZ layer (between 5 and 10m above the sea level).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L10_B22_XXXX
Indicator Name
Total built-up in BUTYPE 22 (non-residential prevalent 3-7 floors) in LECZ (between 5 and 10m)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., Alessandra Carioli, Christina Corbane, Lewis Dijkstra, Pietro Florio, Hannah K. Friedrich, Jing Gao, Stefan Leyk, Linlin Lu, Luca Maffenini, Ines Mari-Rivero, Michele Melchiorri, Vasileios Syrris, Jamon Van Den Hoek & Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p>
<p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Total built-up in BUTYPE class 22 (non-residential prevalent 3-7 floors) which elevation is below between 5 and 10m above the sea level.
Methodology
Zonal sum of the GHS-BUILT-S R2023A pixel values inside the urban center masked by the BUTYPE layer class 22 and the LECZ layer (between 5 and 10m above the sea level).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Low elevated coastal Zones (LECZ)
Attribute ID
EX_L10_B23_XXXX
Indicator Name
Total built-up in BUTYPE 23 (non-residential prevalent >8 floors) in LECZ (between 5 and 10m)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Pesaresi, M., Schiavina, M., Politis, P., Freire, S., Krasnodębska, K., Uhl, J. H., Alessandra Carioli, Christina Corbane, Lewis Dijkstra, Pietro Florio, Hannah K. Friedrich, Jing Gao, Stefan Leyk, Linlin Lu, Luca Maffenini, Ines Mari-Rivero, Michele Melchiorri, Vasileios Syrris, Jamon Van Den Hoek & Kemper, T. (2024). Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data. International Journal of Digital Earth, 17(1). https://doi.org/10.1080/17538947.2024.2390454</p> <p>Center for International Earth Science Information Network (CIESIN), Columbia University, and CUNY Institute for Demographic Research (CIDR), City University of New York. 2021. Low Elevation Coastal Zone (LECZ) Urban-Rural Population and Land Area Estimates, Version 3. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). https://doi.org/10.7927/d1x1-d702. Accessed 18/05/2021.</p>
Indicator description
Total built-up in BUTYPE class 23 (non-residential prevalent >8 floors) which elevation is between 5 and 10m above the sea level.
Methodology
Zonal sum of the GHS-BUILT-S R2023A pixel values inside the urban center masked by the BUTYPE layer class 23 and the LECZ layer (between 5 and 10m above the sea level).
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices

Indicator thematic area
Exposure
Indicator group
Cyclone wind
Attribute ID
EX_020_S1P_XXXX
Indicator Name
Population exposed to cyclone wind 20 yrp (wind speed classes 1-2)
Units
Number of inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Bloemendaal, N., Haigh, I.D., de Moel, H. et al. Generation of a global synthetic tropical cyclone hazard dataset using STORM. Sci Data 7, 40 (2020). https://www.nature.com/articles/s41597-020-0381-2</p> <p>Bloemendaal, Nadia; de Moel, H. (Hans); Muis, S; Haigh, I.D. (Ivan); Aerts, J.C.J.H. (Jeroen) (2023): STORM tropical cyclone wind speed return periods. Version 4. 4TU.ResearchData. dataset. https://doi.org/10.4121/12705164.v4</p>
Indicator description
Population exposed to cyclone wind classes 1-2 (category 1-2 Saffir-Simpson Hurricane Wind Scale) for a 20 yrp.
Methodology
Zonal sum of the GHS- POP R2023A pixel values inside the urban center masked by the cyclone layer 20 yrp classes 1-2
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
<p>DRMKC (JRC) team uses tropical cyclone maximum wind speed return periods, generated using the Synthetic Tropical cyclOne geneRation Model (STORM). Input TC data are extracted from the International Best Track Archive for Climate Stewardship (IBTrACS) dataset (1980–2018). Comparison between the TC characteristics from the IBTrACS dataset to those generated by STORM shows that the STORM dataset performs sufficiently to be used for TC risk assessments and TC hazard analyses. The STORM model does not distinguish between tropical and extratropical systems. Therefore, TCs with extratropical nature in higher latitudes are not considered in our TC-related analysis.</p>

Indicator thematic area
Exposure
Indicator group
Cyclone wind
Attribute ID
EX_100_S1P_XXXX
Indicator Name
Population exposed to cyclone wind 100 yrp (wind speed classes 1-2)
Units
Number of inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Bloemendaal, N., Haigh, I.D., de Moel, H. et al. Generation of a global synthetic tropical cyclone hazard dataset using STORM. Sci Data 7, 40 (2020). https://www.nature.com/articles/s41597-020-0381-2</p> <p>Bloemendaal, Nadia; de Moel, H. (Hans); Muis, S; Haigh, I.D. (Ivan); Aerts, J.C.J.H. (Jeroen) (2023): STORM tropical cyclone wind speed return periods. Version 4. 4TU.ResearchData. dataset. https://doi.org/10.4121/12705164.v4</p>
Indicator description
Population exposed to cyclone wind classes 1-2 (category 1-2 Saffir-Simpson Hurricane Wind Scale) for a 100 yrp.
Methodology
Zonal sum of the GHS- POP R2023A pixel values inside the urban center masked by the cyclone layer 100 yrp classes 1-2
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
<p>DRMKC (JRC) team uses tropical cyclone maximum wind speed return periods, generated using the Synthetic Tropical cyclOne geneRation Model (STORM). Input TC data are extracted from the International Best Track Archive for Climate Stewardship (IBTrACS) dataset (1980–2018). Comparison between the TC characteristics from the IBTrACS dataset to those generated by STORM shows that the STORM dataset performs sufficiently to be used for TC risk assessments and TC hazard analyses. The STORM model does not distinguish between tropical and extratropical systems. Therefore, TCs with extratropical nature in higher latitudes are not considered in our TC-related analysis.</p>

Indicator thematic area
Exposure
Indicator group
Cyclone wind
Attribute ID
EX_400_S1P_XXXX
Indicator Name
Population exposed to cyclone wind 400 yrp (wind speed classes 1-2)
Units
Number of inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Bloemendaal, N., Haigh, I.D., de Moel, H. et al. Generation of a global synthetic tropical cyclone hazard dataset using STORM. Sci Data 7, 40 (2020). https://www.nature.com/articles/s41597-020-0381-2</p> <p>Bloemendaal, Nadia; de Moel, H. (Hans); Muis, S; Haigh, I.D. (Ivan); Aerts, J.C.J.H. (Jeroen) (2023): STORM tropical cyclone wind speed return periods. Version 4. 4TU.ResearchData. dataset. https://doi.org/10.4121/12705164.v4</p>
Indicator description
Population exposed to cyclone wind classes 1-2 (category 1-2 Saffir-Simpson Hurricane Wind Scale) for a 400 yrp.
Methodology
Zonal sum of the GHS- POP R2023A pixel values inside the urban center masked by the cyclone layer 100 yrp classes 1-2
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
DRMKC (JRC) team uses tropical cyclone maximum wind speed return periods, generated using the Synthetic Tropical cyclOne geneRation Model (STORM). Input TC data are extracted from the International Best Track Archive for Climate Stewardship (IBTrACS) dataset (1980–2018). Comparison between the TC characteristics from the IBTrACS dataset to those generated by STORM shows that the STORM dataset performs sufficiently to be used for TC risk assessments and TC hazard analyses. The STORM model does not distinguish between tropical and extratropical systems. Therefore, TCs with extratropical nature in higher latitudes are not considered in our TC-related analysis.

Indicator thematic area
Exposure
Indicator group
Cyclone wind
Attribute ID
EX_400_S3P_XXXX
Indicator Name
Population exposed to cyclone wind 400 yrp (wind speed classes 3-5)
Units
Number of inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Bloemendaal, N., Haigh, I.D., de Moel, H. et al. Generation of a global synthetic tropical cyclone hazard dataset using STORM. Sci Data 7, 40 (2020). https://www.nature.com/articles/s41597-020-0381-2</p> <p>Bloemendaal, Nadia; de Moel, H. (Hans); Muis, S; Haigh, I.D. (Ivan); Aerts, J.C.J.H. (Jeroen) (2023): STORM tropical cyclone wind speed return periods. Version 4. 4TU.ResearchData. dataset. https://doi.org/10.4121/12705164.v4</p>
Indicator description
Population exposed to cyclone wind classes 1-2 (category 1-2 Saffir-Simpson Hurricane Wind Scale) for a 400 yrp.
Methodology
Zonal sum of the GHS- POP R2023A pixel values inside the urban center masked by the cyclone layer 100 yrp classes 1-2
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
<p>DRMKC (JRC) team uses tropical cyclone maximum wind speed return periods, generated using the Synthetic Tropical cyclOne geneRation Model (STORM). Input TC data are extracted from the International Best Track Archive for Climate Stewardship (IBTrACS) dataset (1980–2018). Comparison between the TC characteristics from the IBTrACS dataset to those generated by STORM shows that the STORM dataset performs sufficiently to be used for TC risk assessments and TC hazard analyses. The STORM model does not distinguish between tropical and extratropical systems. Therefore, TCs with extratropical nature in higher latitudes are not considered in our TC-related analysis.</p> <p>There is population exposed only to classes 3-5 for 400 yrp cyclone wind</p>

Indicator thematic area
Exposure
Indicator group
Cyclone wind
Attribute ID
EX_020_S1B_XXXX
Indicator Name
Total built-up exposed to cyclone wind 20 yr p (wind speed classes 1-2)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Bloemendaal, N., Haigh, I.D., de Moel, H. et al. Generation of a global synthetic tropical cyclone hazard dataset using STORM. Sci Data 7, 40 (2020). https://www.nature.com/articles/s41597-020-0381-2</p> <p>Bloemendaal, Nadia; de Moel, H. (Hans); Muis, S; Haigh, I.D. (Ivan); Aerts, J.C.J.H. (Jeroen) (2023): STORM tropical cyclone wind speed return periods. Version 4. 4TU.ResearchData. dataset. https://doi.org/10.4121/12705164.v4</p>
Indicator description
Total built-up exposed to cyclone wind classes 1-2 (category 1-2 Saffir-Simpson Hurricane Wind Scale) for a 20 yr p.
Methodology
Zonal sum of the GHS-BUILT-S R2023A pixel values inside the urban center masked by the cyclone layer 20 yr p classes 1-2
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
DRMKC (JRC) team uses tropical cyclone maximum wind speed return periods, generated using the Synthetic Tropical cyclOne geneRation Model (STORM). Input TC data are extracted from the International Best Track Archive for Climate Stewardship (IBTrACS) dataset (1980–2018). Comparison between the TC characteristics from the IBTrACS dataset to those generated by STORM shows that the STORM dataset performs sufficiently to be used for TC risk assessments and TC hazard analyses. The STORM model does not distinguish between tropical and extratropical systems. Therefore, TCs with extratropical nature in higher latitudes are not considered in our TC-related analysis.

Indicator thematic area
Exposure
Indicator group
Cyclone wind
Attribute ID
EX_100_S1B_XXXX
Indicator Name
Total built-up exposed to cyclone wind 100 yrp (wind speed classes 1-2)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Bloemendaal, N., Haigh, I.D., de Moel, H. et al. Generation of a global synthetic tropical cyclone hazard dataset using STORM. Sci Data 7, 40 (2020). https://www.nature.com/articles/s41597-020-0381-2</p> <p>Bloemendaal, Nadia; de Moel, H. (Hans); Muis, S; Haigh, I.D. (Ivan); Aerts, J.C.J.H. (Jeroen) (2023): STORM tropical cyclone wind speed return periods. Version 4. 4TU.ResearchData. dataset. https://doi.org/10.4121/12705164.v4</p>
Indicator description
Total built-up exposed to cyclone wind classes 1-2 (category 1-2 Saffir-Simpson Hurricane Wind Scale) for a 100 yrp.
Methodology
Zonal sum of the GHS-BUILT-S R2023A pixel values inside the urban center masked by the cyclone layer 100 yrp classes 1-2
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
DRMKC (JRC) team uses tropical cyclone maximum wind speed return periods, generated using the Synthetic Tropical cyclOne geneRation Model (STORM). Input TC data are extracted from the International Best Track Archive for Climate Stewardship (IBTrACS) dataset (1980–2018). Comparison between the TC characteristics from the IBTrACS dataset to those generated by STORM shows that the STORM dataset performs sufficiently to be used for TC risk assessments and TC hazard analyses. The STORM model does not distinguish between tropical and extratropical systems. Therefore, TCs with extratropical nature in higher latitudes are not considered in our TC-related analysis.

Indicator thematic area
Exposure
Indicator group
Cyclone wind
Attribute ID
EX_400_S1B_XXXX
Indicator Name
Total built-up exposed to cyclone wind 400 yrp (wind speed classes 1-2)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Bloemendaal, N., Haigh, I.D., de Moel, H. et al. Generation of a global synthetic tropical cyclone hazard dataset using STORM. Sci Data 7, 40 (2020). https://www.nature.com/articles/s41597-020-0381-2</p> <p>Bloemendaal, Nadia; de Moel, H. (Hans); Muis, S; Haigh, I.D. (Ivan); Aerts, J.C.J.H. (Jeroen) (2023): STORM tropical cyclone wind speed return periods. Version 4. 4TU.ResearchData. dataset. https://doi.org/10.4121/12705164.v4</p>
Indicator description
Total built-up exposed to cyclone wind classes 1-2 (category 1-2 Saffir-Simpson Hurricane Wind Scale) for a 400 yrp.
Methodology
Zonal sum of the GHS- BUILT-S R2023A pixel values inside the urban center masked by the cyclone layer 100 yrp classes 1-2
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
DRMKC (JRC) team uses tropical cyclone maximum wind speed return periods, generated using the Synthetic Tropical cyclOne geneRation Model (STORM). Input TC data are extracted from the International Best Track Archive for Climate Stewardship (IBTrACS) dataset (1980–2018). Comparison between the TC characteristics from the IBTrACS dataset to those generated by STORM shows that the STORM dataset performs sufficiently to be used for TC risk assessments and TC hazard analyses. The STORM model does not distinguish between tropical and extratropical systems. Therefore, TCs with extratropical nature in higher latitudes are not considered in our TC-related analysis.

Indicator thematic area
Exposure
Indicator group
Cyclone wind
Attribute ID
EX_400_S3P_XXXX
Indicator Name
Total built-up exposed to cyclone wind 400 yrp (wind speed classes 3-5)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Bloemendaal, N., Haigh, I.D., de Moel, H. et al. Generation of a global synthetic tropical cyclone hazard dataset using STORM. Sci Data 7, 40 (2020). https://www.nature.com/articles/s41597-020-0381-2</p> <p>Bloemendaal, Nadia; de Moel, H. (Hans); Muis, S; Haigh, I.D. (Ivan); Aerts, J.C.J.H. (Jeroen) (2023): STORM tropical cyclone wind speed return periods. Version 4. 4TU.ResearchData. dataset. https://doi.org/10.4121/12705164.v4</p>
Indicator description
Total built-up exposed to cyclone wind classes 1-2 (category 1-2 Saffir-Simpson Hurricane Wind Scale) for a 400 yrp.
Methodology
Zonal sum of the GHS-BUILT-S R2023A pixel values inside the urban center masked by the cyclone layer 100 yrp classes 1-2
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
<p>DRMKC (JRC) team uses tropical cyclone maximum wind speed return periods, generated using the Synthetic Tropical cyclOne geneRation Model (STORM). Input TC data are extracted from the International Best Track Archive for Climate Stewardship (IBTrACS) dataset (1980–2018). Comparison between the TC characteristics from the IBTrACS dataset to those generated by STORM shows that the STORM dataset performs sufficiently to be used for TC risk assessments and TC hazard analyses. The STORM model does not distinguish between tropical and extratropical systems. Therefore, TCs with extratropical nature in higher latitudes are not considered in our TC-related analysis.</p> <p>There is built-up exposed only to classes 3-5 for 400 yrp cyclone wind</p>

Indicator thematic area
Exposure
Indicator group
Cyclone wind
Attribute ID
EX_020_S1N_XXXX
Indicator Name
Non-residential built-up exposed to cyclone wind 20 yrp (wind speed classes 1-2)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Bloemendaal, N., Haigh, I.D., de Moel, H. et al. Generation of a global synthetic tropical cyclone hazard dataset using STORM. Sci Data 7, 40 (2020). https://www.nature.com/articles/s41597-020-0381-2</p> <p>Bloemendaal, Nadia; de Moel, H. (Hans); Muis, S; Haigh, I.D. (Ivan); Aerts, J.C.J.H. (Jeroen) (2023): STORM tropical cyclone wind speed return periods. Version 4. 4TU.ResearchData. dataset. https://doi.org/10.4121/12705164.v4</p>
Indicator description
Non-residential built-up exposed to cyclone wind classes 1-2 (category 1-2 Saffir-Simpson Hurricane Wind Scale) for a 20 yrp.
Methodology
Zonal sum of the GHS-BUILT-S-NRES R2023A pixel values inside the urban center masked by the cyclone layer 20 yrp classes 1-2
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
DRMKC (JRC) team uses tropical cyclone maximum wind speed return periods, generated using the Synthetic Tropical cyclOne geneRation Model (STORM). Input TC data are extracted from the International Best Track Archive for Climate Stewardship (IBTrACS) dataset (1980–2018). Comparison between the TC characteristics from the IBTrACS dataset to those generated by STORM shows that the STORM dataset performs sufficiently to be used for TC risk assessments and TC hazard analyses. The STORM model does not distinguish between tropical and extratropical systems. Therefore, TCs with extratropical nature in higher latitudes are not considered in our TC-related analysis.

Indicator thematic area
Exposure
Indicator group
Cyclone wind
Attribute ID
EX_100_S1N_XXXX
Indicator Name
Non-residential built-up exposed to cyclone wind 100 yrp (wind speed classes 1-2)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Bloemendaal, N., Haigh, I.D., de Moel, H. et al. Generation of a global synthetic tropical cyclone hazard dataset using STORM. Sci Data 7, 40 (2020). https://www.nature.com/articles/s41597-020-0381-2</p> <p>Bloemendaal, Nadia; de Moel, H. (Hans); Muis, S; Haigh, I.D. (Ivan); Aerts, J.C.J.H. (Jeroen) (2023): STORM tropical cyclone wind speed return periods. Version 4. 4TU.ResearchData. dataset. https://doi.org/10.4121/12705164.v4</p>
Indicator description
Non-residential built-up exposed to cyclone wind classes 1-2 (category 1-2 Saffir-Simpson Hurricane Wind Scale) for a 100 yrp.
Methodology
Zonal sum of the GHS-BUILT-S-NRES R2023A pixel values inside the urban center masked by the cyclone layer 100 yrp classes 1-2
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
DRMKC (JRC) team uses tropical cyclone maximum wind speed return periods, generated using the Synthetic Tropical cyclOne geneRation Model (STORM). Input TC data are extracted from the International Best Track Archive for Climate Stewardship (IBTrACS) dataset (1980–2018). Comparison between the TC characteristics from the IBTrACS dataset to those generated by STORM shows that the STORM dataset performs sufficiently to be used for TC risk assessments and TC hazard analyses. The STORM model does not distinguish between tropical and extratropical systems. Therefore, TCs with extratropical nature in higher latitudes are not considered in our TC-related analysis.

Indicator thematic area
Exposure
Indicator group
Cyclone wind
Attribute ID
EX_400_S1N_XXXX
Indicator Name
Non-residential built-up exposed to cyclone wind 400 yrp (wind speed classes 1-2)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Bloemendaal, N., Haigh, I.D., de Moel, H. et al. Generation of a global synthetic tropical cyclone hazard dataset using STORM. Sci Data 7, 40 (2020). https://www.nature.com/articles/s41597-020-0381-2</p> <p>Bloemendaal, Nadia; de Moel, H. (Hans); Muis, S; Haigh, I.D. (Ivan); Aerts, J.C.J.H. (Jeroen) (2023): STORM tropical cyclone wind speed return periods. Version 4. 4TU.ResearchData. dataset. https://doi.org/10.4121/12705164.v4</p>
Indicator description
Non-residential built-up exposed to cyclone wind classes 1-2 (category 1-2 Saffir-Simpson Hurricane Wind Scale) for a 400 yrp.
Methodology
Zonal sum of the GHS- BUILT-S-NRES R2023A pixel values inside the urban center masked by the cyclone layer 100 yrp classes 1-2
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
DRMKC (JRC) team uses tropical cyclone maximum wind speed return periods, generated using the Synthetic Tropical cyclOne geneRation Model (STORM). Input TC data are extracted from the International Best Track Archive for Climate Stewardship (IBTrACS) dataset (1980–2018). Comparison between the TC characteristics from the IBTrACS dataset to those generated by STORM shows that the STORM dataset performs sufficiently to be used for TC risk assessments and TC hazard analyses. The STORM model does not distinguish between tropical and extratropical systems. Therefore, TCs with extratropical nature in higher latitudes are not considered in our TC-related analysis.

Indicator thematic area
Exposure
Indicator group
Cyclone wind
Attribute ID
EX_400_S3N_XXXX
Indicator Name
Non-residential built-up exposed to cyclone wind 400 yrp (wind speed classes 3-5)
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Bloemendaal, N., Haigh, I.D., de Moel, H. et al. Generation of a global synthetic tropical cyclone hazard dataset using STORM. Sci Data 7, 40 (2020). https://www.nature.com/articles/s41597-020-0381-2</p> <p>Bloemendaal, Nadia; de Moel, H. (Hans); Muis, S; Haigh, I.D. (Ivan); Aerts, J.C.J.H. (Jeroen) (2023): STORM tropical cyclone wind speed return periods. Version 4. 4TU.ResearchData. dataset. https://doi.org/10.4121/12705164.v4</p>
Indicator description
Non-residential built-up exposed to cyclone wind classes 1-2 (category 1-2 Saffir-Simpson Hurricane Wind Scale) for a 400 yrp.
Methodology
Zonal sum of the GHS-BUILT-S-NRES R2023A pixel values inside the urban center masked by the cyclone layer 100 yrp classes 1-2
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
<p>DRMKC (JRC) team uses tropical cyclone maximum wind speed return periods, generated using the Synthetic Tropical cyclOne geneRation Model (STORM). Input TC data are extracted from the International Best Track Archive for Climate Stewardship (IBTrACS) dataset (1980–2018). Comparison between the TC characteristics from the IBTrACS dataset to those generated by STORM shows that the STORM dataset performs sufficiently to be used for TC risk assessments and TC hazard analyses. The STORM model does not distinguish between tropical and extratropical systems. Therefore, TCs with extratropical nature in higher latitudes are not considered in our TC-related analysis.</p> <p>There is built-up exposed only to classes 3-5 for 400 yrp cyclone wind</p>

Indicator thematic area
Exposure
Indicator group
Coastal flood
Attribute ID
EX_CF2_POP_XXXX
Indicator Name
Population exposed to coastal floods 20 yr p
Units
Number of inhabitants
Data Source
Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE
Vousdoukas, M.I., Mentaschi, L., Voukouvalas, E., Verlaan, M., Jevrejeva, S., Jackson, L.P., Feyen, L., 2018. Global probabilistic projections of extreme sea levels show intensification of coastal flood hazard. Nat. Commun. 9, 2360. https://doi.org/10.1038/s41467-018-04692-w .
Vousdoukas, M.I., Mentaschi, L., Voukouvalas, E., Bianchi, A., Dottori, F., Feyen, L., 2018. Climatic and socioeconomic controls of future coastal flood risk in Europe. Nat. Clim. Change. 89 (8), 776–780. https://doi.org/10.1038/s41558-018-0260-4 .
Dottori, F., Salamon, P., Bianchi, A., Alfieri, L., Hirpa, F.A., Feyen, L., 2016. Development and evaluation of a framework for global flood hazard mapping. Adv. Water Resour. 94, 87–102. https://doi.org/10.1016/j.advwatres.2016.05.002 .
Indicator description
Population exposed to coastal floods (20 yr p).
Methodology
Zonal sum of the GHS-POP R2023A pixel values inside the urban center masked by the coastal flood layer 20 yr p
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
DRMKC (JRC) team uses the coastal flood extent which is estimated by the JRC LISFLOOD-FP numerical model and derived by the various design return periods of the total water level. The extreme total water level describes the contribution of the mean sea level, tides and extreme episodic water level variations (storm surges and waves), without considering the non-linear interactions between the hydrodynamic components. Although the episodic offshore water level has been validated with tide gauge and wave buoy records, uncertainties of the derived inundation extent may arise due to the performance skill of the utilized hydrodynamic numerical models, in the absence of high resolution and accurate nearshore topobathy data, especially in locations with complex morphology.

Indicator thematic area
Exposure
Indicator group
Coastal flood
Attribute ID
EX_CF1_POP_XXXX
Indicator Name
Population exposed to coastal floods 100 yr p
Units
Number of inhabitants
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Vousdoukas, M.I., Mentaschi, L., Voukouvalas, E., Verlaan, M., Jevrejeva, S., Jackson, L.P., Feyen, L., 2018. Global probabilistic projections of extreme sea levels show intensification of coastal flood hazard. Nat. Commun. 9, 2360. https://doi.org/10.1038/s41467-018-04692-w.</p> <p>Vousdoukas, M.I., Mentaschi, L., Voukouvalas, E., Bianchi, A., Dottori, F., Feyen, L., 2018. Climatic and socioeconomic controls of future coastal flood risk in Europe. Nat. Clim. Change. 89 (8), 776–780. https://doi.org/10.1038/s41558-018-0260-4.</p> <p>Dottori, F., Salamon, P., Bianchi, A., Alfieri, L., Hirpa, F.A., Feyen, L., 2016. Development and evaluation of a framework for global flood hazard mapping. Adv. Water Resour. 94, 87–102. https://doi.org/10.1016/j.advwatres.2016.05.002.</p>
Indicator description
Population exposed to coastal floods (100 yr p).
Methodology
Zonal sum of the GHS-POP R2023A pixel values inside the urban center masked by the coastal flood layer 100 yr p
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
<p>DRMKC (JRC) team uses the coastal flood extent which is estimated by the JRC LISFLOOD-FP numerical model and derived by the various design return periods of the total water level. The extreme total water level describes the contribution of the mean sea level, tides and extreme episodic water level variations (storm surges and waves), without considering the non-linear interactions between the hydrodynamic components. Although the episodic offshore water level has been validated with tide gauge and wave buoy records, uncertainties of the derived inundation extent may arise due to the performance skill of the utilized hydrodynamic numerical models, in the absence of high resolution and accurate nearshore topobathy data, especially in locations with complex morphology.</p>

Indicator thematic area
Exposure
Indicator group
Coastal flood
Attribute ID
EX_CF2_BUS_XXXX
Indicator Name
Built-up exposed to coastal floods 20 yrp
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC)</p> <p>PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Vousdoukas, M.I., Mentaschi, L., Voukouvalas, E., Verlaan, M., Jevrejeva, S., Jackson, L.P., Feyen, L., 2018. Global probabilistic projections of extreme sea levels show intensification of coastal flood hazard. Nat. Commun. 9, 2360. https://doi.org/10.1038/s41467-018-04692-w.</p> <p>Vousdoukas, M.I., Mentaschi, L., Voukouvalas, E., Bianchi, A., Dottori, F., Feyen, L., 2018. Climatic and socioeconomic controls of future coastal flood risk in Europe. Nat. Clim. Change. 89 (8), 776–780. https://doi.org/10.1038/s41558-018-0260-4.</p> <p>Dottori, F., Salamon, P., Bianchi, A., Alfieri, L., Hirpa, F.A., Feyen, L., 2016. Development and evaluation of a framework for global flood hazard mapping. Adv. Water Resour. 94, 87–102. https://doi.org/10.1016/j.advwatres.2016.05.002.</p>
Indicator description
Total built-up exposed to coastal floods (20 yrp).
Methodology
Zonal sum of the GHS- BUILT-S R2023A pixel values inside the urban center masked by the coastal flood layer 20 yrp
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
DRMKC (JRC) team uses the coastal flood extent which is estimated by the JRC LISFLOOD-FP numerical model and derived by the various design return periods of the total water level. The extreme total water level describes the contribution of the mean sea level, tides and extreme episodic water level variations (storm surges and waves), without considering the non-linear interactions between the hydrodynamic components. Although the episodic offshore water level has been validated with tide gauge and wave buoy records, uncertainties of the derived inundation extent may arise due to the performance skill of the utilized hydrodynamic numerical models, in the absence of high resolution and accurate nearshore topobathy data, especially in locations with complex morphology.

Indicator thematic area
Exposure
Indicator group
Coastal flood
Attribute ID
EX_CF1_BUS_XXXX
Indicator Name
Built-up exposed to coastal floods 100 yrp
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC)</p> <p>PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Vousdoukas, M.I., Mentaschi, L., Voukouvalas, E., Verlaan, M., Jevrejeva, S., Jackson, L.P., Feyen, L., 2018. Global probabilistic projections of extreme sea levels show intensification of coastal flood hazard. Nat. Commun. 9, 2360. https://doi.org/10.1038/s41467-018-04692-w.</p> <p>Vousdoukas, M.I., Mentaschi, L., Voukouvalas, E., Bianchi, A., Dottori, F., Feyen, L., 2018. Climatic and socioeconomic controls of future coastal flood risk in Europe. Nat. Clim. Change. 89 (8), 776–780. https://doi.org/10.1038/s41558-018-0260-4.</p> <p>Dottori, F., Salamon, P., Bianchi, A., Alfieri, L., Hirpa, F.A., Feyen, L., 2016. Development and evaluation of a framework for global flood hazard mapping. Adv. Water Resour. 94, 87–102. https://doi.org/10.1016/j.advwatres.2016.05.002.</p>
Indicator description
Total built-up exposed to coastal floods (100 yrp).
Methodology
Zonal sum of the GHS- BUILT-S R2023A pixel values inside the urban center masked by the coastal flood layer 100 yrp
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
DRMKC (JRC) team uses the coastal flood extent which is estimated by the JRC LISFLOOD-FP numerical model and derived by the various design return periods of the total water level. The extreme total water level describes the contribution of the mean sea level, tides and extreme episodic water level variations (storm surges and waves), without considering the non-linear interactions between the hydrodynamic components. Although the episodic offshore water level has been validated with tide gauge and wave buoy records, uncertainties of the derived inundation extent may arise due to the performance skill of the utilized hydrodynamic numerical models, in the absence of high resolution and accurate nearshore topobathy data, especially in locations with complex morphology.

Indicator thematic area
Exposure
Indicator group
Coastal flood
Attribute ID
EX_CF2_NRE_XXXX
Indicator Name
Non-residential built-up exposed to coastal floods 20 yr p
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC)</p> <p>PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Vousdoukas, M.I., Mentaschi, L., Voukouvalas, E., Verlaan, M., Jevrejeva, S., Jackson, L.P., Feyen, L., 2018. Global probabilistic projections of extreme sea levels show intensification of coastal flood hazard. Nat. Commun. 9, 2360. https://doi.org/10.1038/s41467-018-04692-w.</p> <p>Vousdoukas, M.I., Mentaschi, L., Voukouvalas, E., Bianchi, A., Dottori, F., Feyen, L., 2018. Climatic and socioeconomic controls of future coastal flood risk in Europe. Nat. Clim. Change. 89 (8), 776–780. https://doi.org/10.1038/s41558-018-0260-4.</p> <p>Dottori, F., Salamon, P., Bianchi, A., Alfieri, L., Hirpa, F.A., Feyen, L., 2016. Development and evaluation of a framework for global flood hazard mapping. Adv. Water Resour. 94, 87–102. https://doi.org/10.1016/j.advwatres.2016.05.002.</p>
Indicator description
Non-residential built-up exposed to coastal floods (20 yr p).
Methodology
Zonal sum of the GHS- BUILT-S-NRES R2023A pixel values inside the urban center masked by the coastal flood layer 20 yr p
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
DRMKC (JRC) team uses the coastal flood extent which is estimated by the JRC LISFLOOD-FP numerical model and derived by the various design return periods of the total water level. The extreme total water level describes the contribution of the mean sea level, tides and extreme episodic water level variations (storm surges and waves), without considering the non-linear interactions between the hydrodynamic components. Although the episodic offshore water level has been validated with tide gauge and wave buoy records, uncertainties of the derived inundation extent may arise due to the performance skill of the utilized hydrodynamic numerical models, in the absence of high resolution and accurate nearshore topobathy data, especially in locations with complex morphology.

Indicator thematic area
Exposure
Indicator group
Coastal flood
Attribute ID
EX_CF1_NRE_XXXX
Indicator Name
Non-residential built-up exposed to coastal floods 100 yr p
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC)</p> <p>PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Vousdoukas, M.I., Mentaschi, L., Voukouvalas, E., Verlaan, M., Jevrejeva, S., Jackson, L.P., Feyen, L., 2018. Global probabilistic projections of extreme sea levels show intensification of coastal flood hazard. Nat. Commun. 9, 2360. https://doi.org/10.1038/s41467-018-04692-w.</p> <p>Vousdoukas, M.I., Mentaschi, L., Voukouvalas, E., Bianchi, A., Dottori, F., Feyen, L., 2018. Climatic and socioeconomic controls of future coastal flood risk in Europe. Nat. Clim. Change. 89 (8), 776–780. https://doi.org/10.1038/s41558-018-0260-4.</p> <p>Dottori, F., Salamon, P., Bianchi, A., Alfieri, L., Hirpa, F.A., Feyen, L., 2016. Development and evaluation of a framework for global flood hazard mapping. Adv. Water Resour. 94, 87–102. https://doi.org/10.1016/j.advwatres.2016.05.002.</p>
Indicator description
Non-residential built-up exposed to coastal floods (100 yr p).
Methodology
Zonal sum of the GHS- BUILT-S-NRES R2023A pixel values inside the urban center masked by the coastal flood layer 100 yr p
Methodology Short
Zonal statistics (sum)
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
DRMKC (JRC) team uses the coastal flood extent which is estimated by the JRC LISFLOOD-FP numerical model and derived by the various design return periods of the total water level. The extreme total water level describes the contribution of the mean sea level, tides and extreme episodic water level variations (storm surges and waves), without considering the non-linear interactions between the hydrodynamic components. Although the episodic offshore water level has been validated with tide gauge and wave buoy records, uncertainties of the derived inundation extent may arise due to the performance skill of the utilized hydrodynamic numerical models, in the absence of high resolution and accurate nearshore topobathy data, especially in locations with complex morphology.

Indicator thematic area
Exposure
Indicator group
Coastal flood
Attribute ID
EX_CF2_SHP_XXXX
Indicator Name
Share of population exposed to coastal floods 20 yr p
Units
%
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC)</p> <p>PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Vousdoukas, M.I., Mentaschi, L., Voukouvalas, E., Verlaan, M., Jevrejeva, S., Jackson, L.P., Feyen, L., 2018. Global probabilistic projections of extreme sea levels show intensification of coastal flood hazard. Nat. Commun. 9, 2360. https://doi.org/10.1038/s41467-018-04692-w.</p> <p>Vousdoukas, M.I., Mentaschi, L., Voukouvalas, E., Bianchi, A., Dottori, F., Feyen, L., 2018. Climatic and socioeconomic controls of future coastal flood risk in Europe. Nat. Clim. Change. 89 (8), 776–780. https://doi.org/10.1038/s41558-018-0260-4.</p> <p>Dottori, F., Salamon, P., Bianchi, A., Alfieri, L., Hirpa, F.A., Feyen, L., 2016. Development and evaluation of a framework for global flood hazard mapping. Adv. Water Resour. 94, 87–102. https://doi.org/10.1016/j.advwatres.2016.05.002.</p>
Indicator description
Share of population exposed to coastal floods (20 yr p).
Methodology
Percentage of population exposed to coastal floods (20yrp) over total population in urban center.
Methodology Short
Ratio
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
DRMKC (JRC) team uses the coastal flood extent which is estimated by the JRC LISFLOOD-FP numerical model and derived by the various design return periods of the total water level. The extreme total water level describes the contribution of the mean sea level, tides and extreme episodic water level variations (storm surges and waves), without considering the non-linear interactions between the hydrodynamic components. Although the episodic offshore water level has been validated with tide gauge and wave buoy records, uncertainties of the derived inundation extent may arise due to the performance skill of the utilized hydrodynamic numerical models, in the absence of high resolution and accurate nearshore topobathy data, especially in locations with complex morphology.

Indicator thematic area
Exposure
Indicator group
Coastal flood
Attribute ID
EX_CF1_SHP_XXXX
Indicator Name
Share of population exposed to coastal floods 100 yrp
Units
%
Data Source
<p>Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC)</p> <p>PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf, doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE</p> <p>Vousdoukas, M.I., Mentaschi, L., Voukouvalas, E., Verlaan, M., Jevrejeva, S., Jackson, L.P., Feyen, L., 2018. Global probabilistic projections of extreme sea levels show intensification of coastal flood hazard. Nat. Commun. 9, 2360. https://doi.org/10.1038/s41467-018-04692-w.</p> <p>Vousdoukas, M.I., Mentaschi, L., Voukouvalas, E., Bianchi, A., Dottori, F., Feyen, L., 2018. Climatic and socioeconomic controls of future coastal flood risk in Europe. Nat. Clim. Change. 89 (8), 776–780. https://doi.org/10.1038/s41558-018-0260-4.</p> <p>Dottori, F., Salamon, P., Bianchi, A., Alfieri, L., Hirpa, F.A., Feyen, L., 2016. Development and evaluation of a framework for global flood hazard mapping. Adv. Water Resour. 94, 87–102. https://doi.org/10.1016/j.advwatres.2016.05.002.</p>
Indicator description
Share of population exposed to coastal floods (100 yrp).
Methodology
Percentage of population exposed to coastal floods (100yrp) over total population in urban center.
Methodology Short
Ratio
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
DRMKC (JRC) team uses the coastal flood extent which is estimated by the JRC LISFLOOD-FP numerical model and derived by the various design return periods of the total water level. The extreme total water level describes the contribution of the mean sea level, tides and extreme episodic water level variations (storm surges and waves), without considering the non-linear interactions between the hydrodynamic components. Although the episodic offshore water level has been validated with tide gauge and wave buoy records, uncertainties of the derived inundation extent may arise due to the performance skill of the utilized hydrodynamic numerical models, in the absence of high resolution and accurate nearshore topobathy data, especially in locations with complex morphology.

Indicator thematic area
Exposure
Indicator group
Coastal flood
Attribute ID
EX_CF2_SHB_XXXX
Indicator Name
Share of built-up exposed to coastal floods 20 yr p
Units
%
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC)</p> <p>PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Vousdoukas, M.I., Mentaschi, L., Voukouvalas, E., Verlaan, M., Jevrejeva, S., Jackson, L.P., Feyen, L., 2018. Global probabilistic projections of extreme sea levels show intensification of coastal flood hazard. Nat. Commun. 9, 2360. https://doi.org/10.1038/s41467-018-04692-w.</p> <p>Vousdoukas, M.I., Mentaschi, L., Voukouvalas, E., Bianchi, A., Dottori, F., Feyen, L., 2018. Climatic and socioeconomic controls of future coastal flood risk in Europe. Nat. Clim. Change. 89 (8), 776–780. https://doi.org/10.1038/s41558-018-0260-4.</p> <p>Dottori, F., Salamon, P., Bianchi, A., Alfieri, L., Hirpa, F.A., Feyen, L., 2016. Development and evaluation of a framework for global flood hazard mapping. Adv. Water Resour. 94, 87–102. https://doi.org/10.1016/j.advwatres.2016.05.002.</p>
Indicator description
Share of total built-up exposed to coastal floods (20 yr p).
Methodology
Percentage of total built-up exposed to coastal floods (20yrp) over total built-up in urban center.
Methodology Short
Ratio
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
DRMKC (JRC) team uses the coastal flood extent which is estimated by the JRC LISFLOOD-FP numerical model and derived by the various design return periods of the total water level. The extreme total water level describes the contribution of the mean sea level, tides and extreme episodic water level variations (storm surges and waves), without considering the non-linear interactions between the hydrodynamic components. Although the episodic offshore water level has been validated with tide gauge and wave buoy records, uncertainties of the derived inundation extent may arise due to the performance skill of the utilized hydrodynamic numerical models, in the absence of high resolution and accurate nearshore topobathy data, especially in locations with complex morphology.

Indicator thematic area
Exposure
Indicator group
Coastal flood
Attribute ID
EX_CF1_SHB_XXXX
Indicator Name
Share of built-up exposed to coastal floods 100 yr p
Units
%
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Vousdoukas, M.I., Mentaschi, L., Voukouvalas, E., Verlaan, M., Jevrejeva, S., Jackson, L.P., Feyen, L., 2018. Global probabilistic projections of extreme sea levels show intensification of coastal flood hazard. Nat. Commun. 9, 2360. https://doi.org/10.1038/s41467-018-04692-w.</p> <p>Vousdoukas, M.I., Mentaschi, L., Voukouvalas, E., Bianchi, A., Dottori, F., Feyen, L., 2018. Climatic and socioeconomic controls of future coastal flood risk in Europe. Nat. Clim. Change. 89 (8), 776–780. https://doi.org/10.1038/s41558-018-0260-4.</p> <p>Dottori, F., Salamon, P., Bianchi, A., Alfieri, L., Hirpa, F.A., Feyen, L., 2016. Development and evaluation of a framework for global flood hazard mapping. Adv. Water Resour. 94, 87–102. https://doi.org/10.1016/j.advwatres.2016.05.002.</p>
Indicator description
Share of total built-up exposed to coastal floods (100 yr p).
Methodology
Percentage of total built-up exposed to coastal floods (100yrp) over total built-up in urban center.
Methodology Short
Ratio
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
DRMKC (JRC) team uses the coastal flood extent which is estimated by the JRC LISFLOOD-FP numerical model and derived by the various design return periods of the total water level. The extreme total water level describes the contribution of the mean sea level, tides and extreme episodic water level variations (storm surges and waves), without considering the non-linear interactions between the hydrodynamic components. Although the episodic offshore water level has been validated with tide gauge and wave buoy records, uncertainties of the derived inundation extent may arise due to the performance skill of the utilized hydrodynamic numerical models, in the absence of high resolution and accurate nearshore topobathy data, especially in locations with complex morphology.

Indicator thematic area
Exposure
Indicator group
Coastal flood
Attribute ID
EX_CF2_SNR_XXXX
Indicator Name
Share of non-residential built-up exposed to coastal floods 20 yr p
Units
%
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030) European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Vousdoukas, M.I., Mentaschi, L., Voukouvalas, E., Verlaan, M., Jevrejeva, S., Jackson, L.P., Feyen, L., 2018. Global probabilistic projections of extreme sea levels show intensification of coastal flood hazard. Nat. Commun. 9, 2360. https://doi.org/10.1038/s41467-018-04692-w.</p> <p>Vousdoukas, M.I., Mentaschi, L., Voukouvalas, E., Bianchi, A., Dottori, F., Feyen, L., 2018. Climatic and socioeconomic controls of future coastal flood risk in Europe. Nat. Clim. Change. 89 (8), 776–780. https://doi.org/10.1038/s41558-018-0260-4.</p> <p>Dottori, F., Salamon, P., Bianchi, A., Alfieri, L., Hirpa, F.A., Feyen, L., 2016. Development and evaluation of a framework for global flood hazard mapping. Adv. Water Resour. 94, 87–102. https://doi.org/10.1016/j.advwatres.2016.05.002.</p>
Indicator description
Share of non-residential built-up exposed to coastal floods (20 yr p).
Methodology
Percentage of non-residential built-up exposed to coastal floods (20yrp) over non-residential built-up in urban center.
Methodology Short
Ratio
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
DRMKC (JRC) team uses the coastal flood extent which is estimated by the JRC LISFLOOD-FP numerical model and derived by the various design return periods of the total water level. The extreme total water level describes the contribution of the mean sea level, tides and extreme episodic water level variations (storm surges and waves), without considering the non-linear interactions between the hydrodynamic components. Although the episodic offshore water level has been validated with tide gauge and wave buoy records, uncertainties of the derived inundation extent may arise due to the performance skill of the utilized hydrodynamic numerical models, in the absence of high resolution and accurate nearshore topobathy data, especially in locations with complex morphology.

Indicator thematic area
Exposure
Indicator group
Coastal flood
Attribute ID
EX_CF1_SNRL_XXXX
Indicator Name
Share of non-residential built-up exposed to coastal floods 100 yr p
Units
%
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030)European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Vousdoukas, M.I., Mentaschi, L., Voukouvalas, E., Verlaan, M., Jevrejeva, S., Jackson, L.P., Feyen, L., 2018. Global probabilistic projections of extreme sea levels show intensification of coastal flood hazard. Nat. Commun. 9, 2360. https://doi.org/10.1038/s41467-018-04692-w.</p> <p>Vousdoukas, M.I., Mentaschi, L., Voukouvalas, E., Bianchi, A., Dottori, F., Feyen, L., 2018. Climatic and socioeconomic controls of future coastal flood risk in Europe. Nat. Clim. Change. 89 (8), 776–780. https://doi.org/10.1038/s41558-018-0260-4.</p> <p>Dottori, F., Salamon, P., Bianchi, A., Alfieri, L., Hirpa, F.A., Feyen, L., 2016. Development and evaluation of a framework for global flood hazard mapping. Adv. Water Resour. 94, 87–102. https://doi.org/10.1016/j.advwatres.2016.05.002.</p>
Indicator description
Share of non-residential built-up exposed to coastal floods (100 yr p).
Methodology
Percentage of non-residential built-up exposed to coastal floods (100yrp) over non-residential built-up in urban center.
Methodology Short
Ratio
Temporal Coverage
1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025, 2030
Uncertainties & Best practices
DRMKC (JRC) team uses the coastal flood extent which is estimated by the JRC LISFLOOD-FP numerical model and derived by the various design return periods of the total water level. The extreme total water level describes the contribution of the mean sea level, tides and extreme episodic water level variations (storm surges and waves), without considering the non-linear interactions between the hydrodynamic components. Although the episodic offshore water level has been validated with tide gauge and wave buoy records, uncertainties of the derived inundation extent may arise due to the performance skill of the utilized hydrodynamic numerical models, in the absence of high resolution and accurate nearshore topobathy data, especially in locations with complex morphology.

Indicator thematic area
Geography
Indicator group
Biome
Attribute ID
GE_BIO_A01_XXXX
Indicator Name
Share of Urban Center area classified as Biome class "SLC" (Short, Low VPI, Cold)
Units
%
Data Source
Higgins, S.I., Buitenwerf, R. and Moncrieff, G.R. (2016), Defining functional biomes and monitoring their change globally. Glob Change Biol, 22: 3583-3593. https://doi.org/10.1111/gcb.13367
Indicator description
Share of Urban Center area classified as Biome class "SLC" (Short, Low VPI, Cold)
Methodology
Share of the total urban center area over the urban area classified as Biome class "SLC" (Short, Low VPI, Cold)
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Biome
Attribute ID
GE_BIO_A02_XXXX
Indicator Name
Share of Urban Center area classified as Biome class "SMC" (Short, Medium VPI, Cold)
Units
%
Data Source
Higgins, S.I., Buitenwerf, R. and Moncrieff, G.R. (2016), Defining functional biomes and monitoring their change globally. Glob Change Biol, 22: 3583-3593. https://doi.org/10.1111/gcb.13367
Indicator description
Share of Urban Center area classified as Biome class "SLC" (Short, Low VPI, Cold)
Methodology
Share of the total urban center area over the urban area classified as Biome class "SMC" (Short, Medium VPI, Cold)
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Biome
Attribute ID
GE_BIO_A03_XXXX
Indicator Name
Share of Urban Center area classified as Biome class "SHC" (Short, High VPI, Cold)
Units
%
Data Source
Higgins, S.I., Buitenwerf, R. and Moncrieff, G.R. (2016), Defining functional biomes and monitoring their change globally. Glob Change Biol, 22: 3583-3593. https://doi.org/10.1111/gcb.13367
Indicator description
Share of Urban Center area classified as Biome class "SLC" (Short, Low VPI, Cold)
Methodology
Share of the total urban center area over the urban area classified as Biome class "SHC" (Short, High VPI, Cold)
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Biome
Attribute ID
GE_BIO_A04_XXXX
Indicator Name
Share of Urban Center area classified as Biome class "TLC" (Tall, Low VPI, Cold)
Units
%
Data Source
Higgins, S.I., Buitenwerf, R. and Moncrieff, G.R. (2016), Defining functional biomes and monitoring their change globally. Glob Change Biol, 22: 3583-3593. https://doi.org/10.1111/gcb.13367
Indicator description
Share of Urban Center area classified as Biome class "TLC" (Tall, Low VPI, Cold)
Methodology
Share of the total urban center area over the urban area classified as Biome class "TLC" (Tall, Low VPI, Cold)
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Biome
Attribute ID
GE_BIO_A05_XXXX
Indicator Name
Share of Urban Center area classified as Biome class "TMC" (Tall, Medium VPI, Cold)
Units
%
Data Source
Higgins, S.I., Buitenwerf, R. and Moncrieff, G.R. (2016), Defining functional biomes and monitoring their change globally. Glob Change Biol, 22: 3583-3593. https://doi.org/10.1111/gcb.13367
Indicator description
Share of Urban Center area classified as Biome class "TMC" (Tall, Medium VPI, Cold)
Methodology
Share of the total urban center area over the urban area classified as Biome class "TMC" (Tall, Medium VPI, Cold)
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Biome
Attribute ID
GE_BIO_A06_XXXX
Indicator Name
Share of Urban Center area classified as Biome class "THC" (Tall, High VPI, Cold)
Units
%
Data Source
Higgins, S.I., Buitenwerf, R. and Moncrieff, G.R. (2016), Defining functional biomes and monitoring their change globally. Glob Change Biol, 22: 3583-3593. https://doi.org/10.1111/gcb.13367
Indicator description
Share of Urban Center area classified as Biome class "THC" (Tall, High VPI, Cold)
Methodology
Share of the total urban center area over the urban area classified as Biome class "THC" (Tall, High VPI, Cold)
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Biome
Attribute ID
GE_BIO_A07_XXXX
Indicator Name
Share of Urban Center area classified as Biome class "SLD" (Short, Low VPI, Dry)
Units
%
Data Source
Higgins, S.I., Buitenwerf, R. and Moncrieff, G.R. (2016), Defining functional biomes and monitoring their change globally. Glob Change Biol, 22: 3583-3593. https://doi.org/10.1111/gcb.13367
Indicator description
Share of Urban Center area classified as Biome class "SLD" (Short, Low VPI, Dry)
Methodology
Share of the total urban center area over the urban area classified as Biome class "SLD" (Short, Low VPI, Dry)
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Biome
Attribute ID
GE_BIO_A08_XXXX
Indicator Name
Share of Urban Center area classified as Biome class "SMD" (Short, Medium VPI, Dry)
Units
%
Data Source
Higgins, S.I., Buitenwerf, R. and Moncrieff, G.R. (2016), Defining functional biomes and monitoring their change globally. Glob Change Biol, 22: 3583-3593. https://doi.org/10.1111/gcb.13367
Indicator description
Share of Urban Center area classified as Biome class "SMD" (Short, Medium VPI, Dry)
Methodology
Share of the total urban center area over the urban area classified as Biome class "SMD" (Short, Medium VPI, Dry)
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Biome
Attribute ID
GE_BIO_A09_XXXX
Indicator Name
Share of Urban Center area classified as Biome class "SHD" (Short, High VPI, Dry)
Units
%
Data Source
Higgins, S.I., Buitenwerf, R. and Moncrieff, G.R. (2016), Defining functional biomes and monitoring their change globally. Glob Change Biol, 22: 3583-3593. https://doi.org/10.1111/gcb.13367
Indicator description
Share of Urban Center area classified as Biome class "SHD" (Short, High VPI, Dry)
Methodology
Share of the total urban center area over the urban area classified as Biome class "SHD" (Short, High VPI, Dry)
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Biome
Attribute ID
GE_BIO_A10_XXXX
Indicator Name
Share of Urban Center area classified as Biome class "TLD" (Tall, Low VPI, Dry)
Units
%
Data Source
Higgins, S.I., Buitenwerf, R. and Moncrieff, G.R. (2016), Defining functional biomes and monitoring their change globally. Glob Change Biol, 22: 3583-3593. https://doi.org/10.1111/gcb.13367
Indicator description
Share of Urban Center area classified as Biome class "TLD" (Tall, Low VPI, Dry)
Methodology
Share of the total urban center area over the urban area classified as Biome class "TLD" (Tall, Low VPI, Dry)
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Biome
Attribute ID
GE_BIO_A11_XXXX
Indicator Name
Share of Urban Center area classified as Biome class "TMD" (Tall, Medium VPI, Dry)
Units
%
Data Source
Higgins, S.I., Buitenwerf, R. and Moncrieff, G.R. (2016), Defining functional biomes and monitoring their change globally. Glob Change Biol, 22: 3583-3593. https://doi.org/10.1111/gcb.13367
Indicator description
Share of Urban Center area classified as Biome class "TMD" (Tall, Medium VPI, Dry)
Methodology
Share of the total urban center area over the urban area classified as Biome class "TMD" (Tall, Medium VPI, Dry)
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Biome
Attribute ID
GE_BIO_A12_XXXX
Indicator Name
Share of Urban Center area classified as Biome class "THD" (Tall, High VPI, Dry)
Units
%
Data Source
Higgins, S.I., Buitenwerf, R. and Moncrieff, G.R. (2016), Defining functional biomes and monitoring their change globally. Glob Change Biol, 22: 3583-3593. https://doi.org/10.1111/gcb.13367
Indicator description
Share of Urban Center area classified as Biome class "THD" (Tall, High VPI, Dry)
Methodology
Share of the total urban center area over the urban area classified as Biome class "THD" (Tall, High VPI, Dry)
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Biome
Attribute ID
GE_BIO_A13_XXXX
Indicator Name
Share of Urban Center area classified as Biome class "SLB" (Short, Low VPI, Both)
Units
%
Data Source
Higgins, S.I., Buitenwerf, R. and Moncrieff, G.R. (2016), Defining functional biomes and monitoring their change globally. Glob Change Biol, 22: 3583-3593. https://doi.org/10.1111/gcb.13367
Indicator description
Share of Urban Center area classified as Biome class "SLB" (Short, Low VPI, Both)
Methodology
Share of the total urban center area over the urban area classified as Biome class "SLB" (Short, Low VPI, Both)
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Biome
Attribute ID
GE_BIO_A14_XXXX
Indicator Name
Share of Urban Center area classified as Biome class "SMB" (Short, Medium VPI, Both)
Units
%
Data Source
Higgins, S.I., Buitenwerf, R. and Moncrieff, G.R. (2016), Defining functional biomes and monitoring their change globally. Glob Change Biol, 22: 3583-3593. https://doi.org/10.1111/gcb.13367
Indicator description
Share of Urban Center area classified as Biome class "SMB" (Short, Medium VPI, Both)
Methodology
Share of the total urban center area over the urban area classified as Biome class "SMB" (Short, Medium VPI, Both)
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Biome
Attribute ID
GE_BIO_A15_XXXX
Indicator Name
Share of Urban Center area classified as Biome class "SHB" (Short, High VPI, Both)
Units
%
Data Source
Higgins, S.I., Buitenwerf, R. and Moncrieff, G.R. (2016), Defining functional biomes and monitoring their change globally. Glob Change Biol, 22: 3583-3593. https://doi.org/10.1111/gcb.13367
Indicator description
Share of Urban Center area classified as Biome class "SHB" (Short, High VPI, Both)
Methodology
Share of the total urban center area over the urban area classified as Biome class "SHB" (Short, High VPI, Both)
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Biome
Attribute ID
GE_BIO_A16_XXXX
Indicator Name
Share of Urban Center area classified as Biome class "TLB" (Tall, Low VPI, Both)
Units
%
Data Source
Higgins, S.I., Buitenwerf, R. and Moncrieff, G.R. (2016), Defining functional biomes and monitoring their change globally. Glob Change Biol, 22: 3583-3593. https://doi.org/10.1111/gcb.13367
Indicator description
Share of Urban Center area classified as Biome class "TLB" (Tall, Low VPI, Both)
Methodology
Share of the total urban center area over the urban area classified as Biome class "TLB" (Tall, Low VPI, Both)
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Biome
Attribute ID
GE_BIO_A17_XXXX
Indicator Name
Share of Urban Center area classified as Biome class "TMB" (Tall, Medium VPI, Both)
Units
%
Data Source
Higgins, S.I., Buitenwerf, R. and Moncrieff, G.R. (2016), Defining functional biomes and monitoring their change globally. Glob Change Biol, 22: 3583-3593. https://doi.org/10.1111/gcb.13367
Indicator description
Share of Urban Center area classified as Biome class "TMB" (Tall, Medium VPI, Both)
Methodology
Share of the total urban center area over the urban area classified as Biome class "TMB" (Tall, Medium VPI, Both)
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Biome
Attribute ID
GE_BIO_A18_XXXX
Indicator Name
Share of Urban Center area classified as Biome class "THB" (Tall, High VPI, Both)
Units
%
Data Source
Higgins, S.I., Buitenwerf, R. and Moncrieff, G.R. (2016), Defining functional biomes and monitoring their change globally. Glob Change Biol, 22: 3583-3593. https://doi.org/10.1111/gcb.13367
Indicator description
Share of Urban Center area classified as Biome class "THB" (Tall, High VPI, Both)
Methodology
Share of the total urban center area over the urban area classified as Biome class "THB" (Tall, High VPI, Both)
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Biome
Attribute ID
GE_BIO_A19_XXXX
Indicator Name
Share of Urban Center area classified as Biome class "SLN" (Short, Low VPI, Non-seasonal)
Units
%
Data Source
Higgins, S.I., Buitenwerf, R. and Moncrieff, G.R. (2016), Defining functional biomes and monitoring their change globally. Glob Change Biol, 22: 3583-3593. https://doi.org/10.1111/gcb.13367
Indicator description
Share of Urban Center area classified as Biome class "SLN" (Short, Low VPI, Non-seasonal)
Methodology
Share of the total urban center area over the urban area classified as Biome class "SLN" (Short, Low VPI, Non-seasonal)
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Biome
Attribute ID
GE_BIO_A20_XXXX
Indicator Name
Share of Urban Center area classified as Biome class "SMN" (Short, Medium VPI, Non-seasonal)
Units
%
Data Source
Higgins, S.I., Buitenwerf, R. and Moncrieff, G.R. (2016), Defining functional biomes and monitoring their change globally. Glob Change Biol, 22: 3583-3593. https://doi.org/10.1111/gcb.13367
Indicator description
Share of Urban Center area classified as Biome class "SMN" (Short, Medium VPI, Non-seasonal)
Methodology
Share of the total urban center area over the urban area classified as Biome class "SMN" (Short, Medium VPI, Non-seasonal)
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Biome
Attribute ID
GE_BIO_A21_XXXX
Indicator Name
Share of Urban Center area classified as Biome class "SHN" (Short, High VPI, Non-seasonal)
Units
%
Data Source
Higgins, S.I., Buitenwerf, R. and Moncrieff, G.R. (2016), Defining functional biomes and monitoring their change globally. Glob Change Biol, 22: 3583-3593. https://doi.org/10.1111/gcb.13367
Indicator description
Share of Urban Center area classified as Biome class "SMN" (Short, Medium VPI, Non-seasonal)
Methodology
Share of the total urban center area over the urban area classified as Biome class "SMN" (Short, Medium VPI, Non-seasonal)
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Biome
Attribute ID
GE_BIO_A22_XXXX
Indicator Name
Share of Urban Center area classified as Biome class "TLN" (Tall, Low VPI, Non-seasonal)
Units
%
Data Source
Higgins, S.I., Buitenwerf, R. and Moncrieff, G.R. (2016), Defining functional biomes and monitoring their change globally. Glob Change Biol, 22: 3583-3593. https://doi.org/10.1111/gcb.13367
Indicator description
Share of Urban Center area classified as Biome class "TLN" (Tall, Low VPI, Non-seasonal)
Methodology
Share of the total urban center area over the urban area classified as Biome class "TLN" (Tall, Low VPI, Non-seasonal)
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Biome
Attribute ID
GE_BIO_A23_XXXX
Indicator Name
Share of Urban Center area classified as Biome class "TMN" (Tall, Medium VPI, Non-seasonal)
Units
%
Data Source
Higgins, S.I., Buitenwerf, R. and Moncrieff, G.R. (2016), Defining functional biomes and monitoring their change globally. Glob Change Biol, 22: 3583-3593. https://doi.org/10.1111/gcb.13367
Indicator description
Share of Urban Center area classified as Biome class "TMN" (Tall, Medium VPI, Non-seasonal)
Methodology
Share of the total urban center area over the urban area classified as Biome class "TMN" (Tall, Medium VPI, Non-seasonal)
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Biome
Attribute ID
GE_BIO_A24_XXXX
Indicator Name
Share of Urban Center area classified as Biome class "THN" (Tall, High VPI, Non-seasonal)
Units
%
Data Source
Higgins, S.I., Buitenwerf, R. and Moncrieff, G.R. (2016), Defining functional biomes and monitoring their change globally. Glob Change Biol, 22: 3583-3593. https://doi.org/10.1111/gcb.13367
Indicator description
Share of Urban Center area classified as Biome class "THN" (Tall, High VPI, Non-seasonal)
Methodology
Share of the total urban center area over the urban area classified as Biome class "THN" (Tall, High VPI, Non-seasonal)
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Ecoregion
Attribute ID
GE_ECO_CLA_2025
Indicator Name
Ecoregion
Units
Categorical
Data Source
David M. Olson, Eric Dinerstein, Eric D. Wikramanayake, Neil D. Burgess, George V. N. Powell, Emma C. Underwood, Jennifer A. D'amico, Illanga Itoua, Holly E. Strand, John C. Morrison, Colby J. Loucks, Thomas F. Allnutt, Taylor H. Ricketts, Yumiko Kura, John F. Lamoreux, Wesley W. Wettenge, Prashant Hedao, Kenneth R. Kassem, Terrestrial Ecoregions of the World: A New Map of Life on Earth: A new global map of terrestrial ecoregions provides an innovative tool for conserving biodiversity, <i>BioScience</i> , Volume 51, Issue 11, November 2001, Pages 933–938, https://doi.org/10.1641/0006-3568(2001)051[0933:TEOTWA]2.0.CO;2
Indicator description
Ecoregion in which the urban center is located.
Methodology
Overlap of urban centers with ecoregions layer, in the cases where the urban center falls into two or more ecoregions the ecoregion with greater overlapping area is selected.
Methodology Short
Overlap
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Major River Basin
Attribute ID
GE_MRB_MAI_2025
Indicator Name
Main Major River Basin
Units
Categorical
Data Source
Major River Basins of the World (WB) https://datacatalog.worldbank.org/search/dataset/0041426
Indicator description
Main Major River Basin
Methodology
Overlap of urban centers with the major river basin layer, in the cases where the urban center falls into two or more ecoregions the ecoregion with greater overlapping area is selected.
Methodology Short
Overlap
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Major River Basin
Attribute ID
GE_MRB_LIS_2025
Indicator Name
List of Major River Basin
Units
Categorical
Data Source
Major River Basins of the World (WB) https://datacatalog.worldbank.org/search/dataset/0041426
Indicator description
List of Major River Basin
Methodology
Overlap of urban centers with the major river basin layer and selection of all overlapping basins.
Methodology Short
Overlap
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Elevation
Attribute ID
GE_ELV_AVG_2025
Indicator Name
Average Elevation
Units
m
Data Source
Copernicus GLO-90 dataset https://doi.org/10.5270/ESA-c5d3d65
Indicator description
Average elevation in the urban center
Methodology
Zonal statistics (avg) of the elevation layer.
Methodology Short
Zonal statistics (avg)
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Soil Class
Attribute ID
GE_SLC_MPC_2025
Indicator Name
Most probable soil class
Units
Categorical
Data Source
SoilGrids250m 2.0 - WRB classes and probabilities. https://data.isric.org/geonetwork/srv/eng/catalog.search#/metadata/c4dc161c-d62d-11ea-a1a3-292680b15169 . Repository: https://files.isric.org/soilgrids/latest/data/wrb/MostProbable/
Accessed 25/09/2024
Indicator description
Zonal count of the most probable soil class layer. The soil class more present in the urban center is selected as the most probable soil class.
Methodology
Zonal statistics (count) of the most probable soil class.
Methodology Short
Zonal statistics (count)
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Geography
Indicator group
Soil Class
Attribute ID
GE_SLC_LST_2025
Indicator Name
List of most probable soil classes
Units
Categorical
Data Source
SoilGrids250m 2.0 - WRB classes and probabilities. https://data.isric.org/geonetwork/srv/eng/catalog.search#/metadata/c4dc161c-d62d-11ea-a1a3-292680b15169 . Repository: https://files.isric.org/soilgrids/latest/data/wrb/MostProbable/
Accessed 25/09/2024
Indicator description
Zonal count of the most probable soil class layer. All soil classes present in the urban center are listed in the most probable soil classes list.
Methodology
Zonal statistics (count) of the most probable soil class.
Methodology Short
Zonal statistics (count)
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Greenness
Indicator group
Tree Canopy Height
Attribute ID
GR_CTH_AVG_XXXX
Indicator Name
Average Canopy Top Height in the built-up area
Units
m
Data Source
Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea , doi: 10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA
Lang, N., Jetz, W., Schindler, K. et al. A high-resolution canopy height model of the Earth. Nat Ecol Evol 7, 1778–1789 (2023). https://doi.org/10.1038/s41559-023-02206-6
Indicator description
Average Canopy Top Height in the built-up area
Methodology
Zonal statistics (average) of canopy top height layer, masked by a 300 m buffer of the GHS-BUILT-S layer.
Methodology Short
Zonal statistics (avg)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
Greenness
Indicator group
Tree Canopy Height
Attribute ID
GR_CTH_STD_XXXX
Indicator Name
Standard deviation Canopy Top Height in the built-up area
Units
m
Data Source
Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea , doi: 10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA
Lang, N., Jetz, W., Schindler, K. et al. A high-resolution canopy height model of the Earth. Nat Ecol Evol 7, 1778–1789 (2023). https://doi.org/10.1038/s41559-023-02206-6
Indicator description
Standard deviation Canopy Top Height in the built-up area
Methodology
Zonal statistics (standard deviation) of canopy top height layer, masked by a 300 m buffer of the GHS-BUILT-S layer.
Methodology Short
Zonal statistics (stdev)
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
Greenness
Indicator group
Greenness in the built-up
Attribute ID
GR_AVG_GRN_XXXX
Indicator Name
Mean greenness in the built-up area
Units
dimensionless
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p>
Landsat Collection 2 Tier 1 Level 2 8-Day NDVI Composite courtesy of the U.S. Geological Survey United Nations Human Settlement Programme (UN-Habitat), Global Urban Indicators Database 2024
USGS Earth Resources Observation and Science (EROS) Center. (2021). Landsat 8 Level-2 Science Products. Landsat NDVI data from Landsat 8 mission. Retrieved from https://eros.usgs.gov/land-cover-land-use/landsat-8-level-2-science-products
Indicator description
Mean greenness (NDVI) in the built-up area (within a 300 m buffer of the built-up cells)
Methodology
Sequence of masking and zonal statistics. 300m buffering of the built-up domain, masking of the built-up grid with 3 years average NDVI (greater or equal than threshold); zonal statistics of the NDVI in the obtained mask. Thresholds for high greenness are estimated by UN-Habitat for agro-ecological-zones, from a sample of 700 cities. Agro-ecological zone values are obtained by averaging observations within the cities in each zone.
Methodology Short
Zonal statistics (sum), zonal statistics (avg), mask
Temporal Coverage
1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
Greenness
Indicator group
Greenness in the built-up
Attribute ID
GR_SQM_HGR_XXXX
Indicator Name
Built-up area in the highest greenness area
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p>
Landsat Collection 2 Tier 1 Level 2 8-Day NDVI Composite courtesy of the U.S. Geological Survey
United Nations Human Settlement Programme (UN-Habitat), Global Urban Indicators Database 2024
USGS Earth Resources Observation and Science (EROS) Center. (2021). Landsat 8 Level-2 Science Products. Landsat NDVI data from Landsat 8 mission. Retrieved from https://eros.usgs.gov/land-cover-land-use/landsat-8-level-2-science-products
Indicator description
Total built-up area (within a 300 m buffer of the built-up cells and high greenness threshold)
Methodology
Sequence of masking and zonal statistics. 300m buffering of the built-up domain, masking of the built-up grid with 3 years average NDVI (greater or equal than threshold); zonal statistics of the built-up in the obtained mask. Thresholds for high greenness are estimated by UN-Habitat for agro-ecological-zones, from a sample of 700 cities. Agro-ecological zone values are obtained by averaging observations within the cities in each zone.
Methodology Short
Zonal statistics (sum), zonal statistics (avg), mask
Temporal Coverage
1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
Greenness
Indicator group
Greenness in the built-up
Attribute ID
GR_SQM_LGR_XXXX
Indicator Name
Built-up area in the lower greenness area
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Landsat Collection 2 Tier 1 Level 2 8-Day NDVI Composite courtesy of the U.S. Geological Survey</p> <p>United Nations Human Settlement Programme (UN-Habitat), Global Urban Indicators Database 2024</p> <p>USGS Earth Resources Observation and Science (EROS) Center. (2021). Landsat 8 Level-2 Science Products. Landsat NDVI data from Landsat 8 mission. Retrieved from https://eros.usgs.gov/land-cover-land-use/landsat-8-level-2-science-products</p>
Indicator description
Total built-up area (within a 300 m buffer of the built-up cells and low greenness threshold)
Methodology
Sequence of masking and zonal statistics. 300m buffering of the built-up domain, masking of the built-up grid with 3 years average NDVI (less or equal than threshold); zonal statistics of the built-up in the obtained mask. Thresholds for high greenness are estimated by UN-Habitat for agro-ecological-zones, from a sample of 700 cities. Agro-ecological zone values are obtained by averaging observations within the cities in each zone.
Methodology Short
Zonal statistics (sum), zonal statistics (avg), mask
Temporal Coverage
1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
Greenness
Indicator group
Greenness in the built-up
Attribute ID
GR_SQM_GRN_XXXX
Indicator Name
Built-up area in the greenness area
Units
m ²
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Landsat Collection 2 Tier 1 Level 2 8-Day NDVI Composite courtesy of the U.S. Geological Survey</p> <p>United Nations Human Settlement Programme (UN-Habitat), Global Urban Indicators Database 2024</p> <p>USGS Earth Resources Observation and Science (EROS) Center. (2021). Landsat 8 Level-2 Science Products. Landsat NDVI data from Landsat 8 mission. Retrieved from https://eros.usgs.gov/land-cover-land-use/landsat-8-level-2-science-products</p>
Indicator description
Total built-up area in the greenness area.
Methodology
Sum of the built-up in the low and high greenness
Methodology Short
Sum
Temporal Coverage
1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
Greenness
Indicator group
Greenness in the built-up
Attribute ID
GR_SHB_HGR_XXXX
Indicator Name
Share of Built-up area in the high greenness area over total built-up area in the urban centre.
Units
%
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Landsat Collection 2 Tier 1 Level 2 8-Day NDVI Composite courtesy of the U.S. Geological Survey</p> <p>United Nations Human Settlement Programme (UN-Habitat), Global Urban Indicators Database 2024</p> <p>USGS Earth Resources Observation and Science (EROS) Center. (2021). Landsat 8 Level-2 Science Products. Landsat NDVI data from Landsat 8 mission. Retrieved from https://eros.usgs.gov/land-cover-land-use/landsat-8-level-2-science-products</p>
Indicator description
Share of built-up area in the high greenness area.
Methodology
Ratio of the built-up in the high greenness and the total built-up of the urban centre.
Methodology Short
Ratio
Temporal Coverage
1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
Greenness
Indicator group
Greenness in the built-up
Attribute ID
GR_SHB_GRN_XXXX
Indicator Name
Share of Built-up area in the greenness area over total built-up area in the urban centre.
Units
%
Data Source
<p>Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea, doi:10.2905/9F06F36F-4B11-47EC-ABB0-4F8B7B1D72EA</p> <p>Landsat Collection 2 Tier 1 Level 2 8-Day NDVI Composite courtesy of the U.S. Geological Survey</p> <p>United Nations Human Settlement Programme (UN-Habitat), Global Urban Indicators Database 2024</p> <p>USGS Earth Resources Observation and Science (EROS) Center. (2021). Landsat 8 Level-2 Science Products. Landsat NDVI data from Landsat 8 mission. Retrieved from https://eros.usgs.gov/land-cover-land-use/landsat-8-level-2-science-products</p>
Indicator description
Share of built-up area in the greenness area.
Methodology
Ratio of the built-up in the greenness and the total built-up of the urban centre.
Methodology Short
Ratio
Temporal Coverage
1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
Hazard and Risk
Indicator group
Conflicts
Attribute ID
HZ_CON_VAC_XXXX
Indicator Name
Number of event type 'violence against civilians'
Units
Number of events
Data Source
ACLED dataset. Published on: 25 October 2023 Last updated: 29 November 2023. Last complete ACLED download on 2023-09-26 10:10:29
Indicator description
Count of numbers of events in the urban center classified as 'violence against civilians'
Methodology
Zonal count of point-based ACLED data where violence type is 'violence against civilians'. The total number corresponds to the previous year, the precedent year and the next year.
Methodology Short
Zonal Statistics (count)
Temporal Coverage
2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
https://acleddata.com/knowledge-base/how-does-acled-code-and-review-data-to-ensure-quality/

Indicator thematic area
Hazard and Risk
Indicator group
Conflicts
Attribute ID
HZ_CON_BAT_XXXX
Indicator Name
Number of event type 'battles'
Units
Number of events
Data Source
ACLED dataset. Published on: 25 October 2023 Last updated: 29 November 2023. Last complete ACLED download on 2023-09-26 10:10:29
Indicator description
Count of numbers of events in the urban center classified as 'battles'
Methodology
Zonal count of point-based ACLED data where violence type is 'battles'. The total number corresponds to the previous year, the precedent year and the next year.
Methodology Short
Zonal Statistics (count)
Temporal Coverage
2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
https://acleddata.com/knowledge-base/how-does-acled-code-and-review-data-to-ensure-quality/

Indicator thematic area
Hazard and Risk
Indicator group
Conflicts
Attribute ID
HZ_CON_SDV_XXXX
Indicator Name
Number of event type 'Strategic Developments'
Units
Number of events
Data Source
ACLED dataset. Published on: 25 October 2023 Last updated: 29 November 2023. Last complete ACLED download on 2023-09-26 10:10:29
Indicator description
Count of numbers of events in the urban center classified as 'Strategic Developments'
Methodology
Zonal count of point-based ACLED data where violence type is 'Strategic Developments'. The total number corresponds to the previous year, the precedent year and the next year.
Methodology Short
Zonal Statistics (count)
Temporal Coverage
2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
https://acleddata.com/knowledge-base/how-does-acled-code-and-review-data-to-ensure-quality/

Indicator thematic area
Hazard and Risk
Indicator group
Conflicts
Attribute ID
HZ_CON_RIO_XXXX
Indicator Name
Number of event type 'riots'
Units
Number of events
Data Source
ACLED dataset. Published on: 25 October 2023 Last updated: 29 November 2023. Last complete ACLED download on 2023-09-26 10:10:29
Indicator description
Count of numbers of events in the urban center classified as 'riots'
Methodology
Zonal count of point-based ACLED data where violence type is 'riots'. The total number corresponds to the previous year, the precedent year and the next year.
Methodology Short
Zonal Statistics (count)
Temporal Coverage
2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
https://acleddata.com/knowledge-base/how-does-acled-code-and-review-data-to-ensure-quality/

Indicator thematic area
Hazard and Risk
Indicator group
Conflicts
Attribute ID
HZ_CON_PRO_XXXX
Indicator Name
Number of event type 'protests'
Units
Number of events
Data Source
ACLED dataset. Published on: 25 October 2023 Last updated: 29 November 2023. Last complete ACLED download on 2023-09-26 10:10:29
Indicator description
Count of numbers of events in the urban center classified as 'protests'
Methodology
Zonal count of point-based ACLED data where violence type is 'protests'. The total number corresponds to the previous year, the precedent year and the next year.
Methodology Short
Zonal Statistics (count)
Temporal Coverage
2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
https://acleddata.com/knowledge-base/how-does-acled-code-and-review-data-to-ensure-quality/

Indicator thematic area
Hazard and Risk
Indicator group
Conflicts
Attribute ID
HZ_CON_ERV_XXXX
Indicator Name
Number of event type 'explosions or remote violence'
Units
Number of events
Data Source
ACLED dataset. Published on: 25 October 2023 Last updated: 29 November 2023. Last complete ACLED download on 2023-09-26 10:10:29
Indicator description
Count of numbers of events in the urban center classified as 'explosions or remote violence'
Methodology
Zonal count of point-based ACLED data where violence type is 'explosions or remote violence'. The total number corresponds to the previous year, the precedent year and the next year.
Methodology Short
Zonal Statistics (count)
Temporal Coverage
2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
https://acleddata.com/knowledge-base/how-does-acled-code-and-review-data-to-ensure-quality/

Indicator thematic area
Hazard and Risk
Indicator group
Conflicts
Attribute ID
HZ_CON_TOT_XXXX
Indicator Name
Total number of events
Units
Number of events
Data Source
Sundberg, Ralph, and Erik Melander, 2013, "Introducing the UCDP Georeferenced Event Dataset", Journal of Peace Research, vol.50, no.4, 523-532. Download on 2023-08-22 15:00:27. Includes the following versions: 23.1, 23.01.23.06, 23.0.7
Indicator description
Count of total number of events in the urban center
Methodology
Zonal count of point-based UCDP GED event data. The total number corresponds to the previous year, the precedent year and the next year.
Methodology Short
Zonal Statistics (count)
Temporal Coverage
2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
Högbladh Stina, 2023, "UCDP GED Codebook version 23.1", Department of Peace and Conflict Research, Uppsala University https://ucdp.uu.se/downloads/ged/ged231.pdf

Indicator thematic area
Hazard and Risk
Indicator group
Conflicts
Attribute ID
HZ_CON_SBC_XXXX
Indicator Name
Number of state-based-conflict
Units
Number of events
Data Source
Sundberg, Ralph, and Erik Melander, 2013, "Introducing the UCDP Georeferenced Event Dataset", Journal of Peace Research, vol.50, no.4, 523-532. Download on 2023-08-22 15:00:27. Includes the following versions: 23.1, 23.01.23.06, 23.0.7
Indicator description
Count of state-based-conflict events in the urban center
Methodology
Zonal count of point-based UCDP GED event data when the event type is 'state-based-conflict'. The total number corresponds to the previous year, the precedent year and the next year.
Methodology Short
Zonal Statistics (count)
Temporal Coverage
2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
Högbladh Stina, 2023, "UCDP GED Codebook version 23.1", Department of Peace and Conflict Research, Uppsala University https://ucdp.uu.se/downloads/ged/ged231.pdf

Indicator thematic area
Hazard and Risk
Indicator group
Conflicts
Attribute ID
HZ_CON_NSC_XXXX
Indicator Name
Number of non-state-conflict
Units
Number of events
Data Source
Sundberg, Ralph, and Erik Melander, 2013, "Introducing the UCDP Georeferenced Event Dataset", Journal of Peace Research, vol.50, no.4, 523-532. Download on 2023-08-22 15:00:27. Includes the following versions: 23.1, 23.01.23.06, 23.0.7
Indicator description
Count of non-state-conflict events in the urban center
Methodology
Zonal count of point-based UCDP GED event data when the event type is 'non-state-conflict'. The total number corresponds to the previous year, the precedent year and the next year.
Methodology Short
Zonal Statistics (count)
Temporal Coverage
2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
Högbladh Stina, 2023, "UCDP GED Codebook version 23.1", Department of Peace and Conflict Research, Uppsala University https://ucdp.uu.se/downloads/ged/ged231.pdf

Indicator thematic area
Hazard and Risk
Indicator group
Conflicts
Attribute ID
HZ_CON_OSV_XXXX
Indicator Name
Number of one-sided violence
Units
Number of events
Data Source
Sundberg, Ralph, and Erik Melander, 2013, "Introducing the UCDP Georeferenced Event Dataset", Journal of Peace Research, vol.50, no.4, 523-532. Download on 2023-08-22 15:00:27. Includes the following versions: 23.1, 23.01.23.06, 23.0.7
Indicator description
Count of one-sided violence events in the urban center
Methodology
Zonal count of point-based UCDP GED event data when the event type is 'one-sided violence'. The total number corresponds to the previous year, the precedent year and the next year.
Methodology Short
Zonal Statistics (count)
Temporal Coverage
2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
Högbladh Stina, 2023, "UCDP GED Codebook version 23.1", Department of Peace and Conflict Research, Uppsala University https://ucdp.uu.se/downloads/ged/ged231.pdf

Indicator thematic area
Hazard and Risk
Indicator group
Conflicts
Attribute ID
HZ_CON_FAT_XXXX
Indicator Name
Number of fatalities
Units
Number of fatalities
Data Source
Sundberg, Ralph, and Erik Melander, 2013, "Introducing the UCDP Georeferenced Event Dataset", Journal of Peace Research, vol.50, no.4, 523-532. Download on 2023-08-22 15:00:27. Includes the following versions: 23.1, 23.01.23.06, 23.0.7
Indicator description
Count of one-sided violence events in the urban center
Methodology
Zonal count of point-based UCDP GED number of fatalities data. The total number corresponds to the previous year, the precedent year and the next year.
Methodology Short
Zonal Statistics (count)
Temporal Coverage
2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
Högbladh Stina, 2023, "UCDP GED Codebook version 23.1", Department of Peace and Conflict Research, Uppsala University https://ucdp.uu.se/downloads/ged/ged231.pdf

Indicator thematic area
Hazard and Risk
Indicator group
Wildfires
Attribute ID
HZ_WLF_NUM_XXXX
Indicator Name
Accumulate number of wildfires
Units
Number of wildfires
Data Source
San-Miguel-Ayanz, J., Houston Durrant, T., Boca, R., Libertà, G., Branco, A., de Rigo, D., Ferrari, D., Maianti, P., Artés Vivancos, T., Schulte, E., Loffler, P., Benchikha, A., Abbas, M., Humer, F., Konstantinov, V., Pešut, I., Petkoviček, S., Papageorgiou, K., Toumasis, I., Kütt, V., Köiv, K., Ruuska, R., Anastasov, T., Timovska, M., Michaut, P., Joannelle, P., Lachmann, M., Pavlidou, K., Debreceni, P., Nagy, D., Nugent, C., Di Fonzo, M., Leisavnieks, E., Jaunkiķis, Z., Mitri, G., Repšienė, S., Assali, F., Mharzi Alaoui, H., Botnen, D., Piwnicki, J., Szczygieł, R., Janeira, M., Borges, A., Sbirnea, R., Mara, S., Eritsov, A., Longauerová, V., Jakša, J., Enriquez, E., Lopez, A., Sandahl, L., Reinhard, M., Conedera, M., Pezzatti, B., Dursun, K. T., Baltaci, U., Moffat, A., 2017. Forest fires in Europe, Middle East and North Africa 2016. Publications Office of the European Union, Luxembourg. ISBN:978-92-79-71292-0 , https://doi.org/10.2760/17690
Goldammer, J. G., Mangeon, S., Keywood, M., Kaiser, J. W., de Groot, W. J., Gunawan, D., Gan, C., Field, R., Sofiev, M., Baklanov, A., 2018. Vegetation Fire and Smoke Pollution Warning and Advisory System (VFSP-WAS): concept note and expert recommendations. Vol. 235 of GAW Report series. World Meteorological Organization, Geneva, Switzerland. https://library.wmo.int/doc_num.php?explnum_id=4519
Giglio, L., Boschetti, L., Roy, D., Humber, M., Justice, C.O., The Collection 6 MODIS Burned Area Mapping Algorithm and Product. Remote Sensing of Environment (submitted June 2018).
https://data.jrc.ec.europa.eu/dataset/e6f7a4e7-1f64-4ba9-9363-6bc864ab4666
Indicator description
Accumulate number of wildfires
Methodology
Zonal count of wildfires occurred inside the urban center.
Methodology Short
Zonal Statistics (count)
Temporal Coverage
2015, 2020, 2024
Uncertainties & Best practices
The accumulate periods are the following: 2012-2015 for the year 2015, 2016-2020 for the year 2020 and 2020-2024 for the year 2024

Indicator thematic area
Hazard and Risk
Indicator group
Wildfires
Attribute ID
HZ_WLF_BHA_XXXX
Indicator Name
Accumulate burnt area
Units
hectares
Data Source
<p>San-Miguel-Ayanz, J., Houston Durrant, T., Boca, R., Libertà, G., Branco, A., de Rigo, D., Ferrari, D., Maianti, P., Artés Vivancos, T., Schulte, E., Loffler, P., Benchikha, A., Abbas, M., Humer, F., Konstantinov, V., Pešut, I., Petkoviček, S., Papageorgiou, K., Toumasis, I., Kütt, V., Köiv, K., Ruuska, R., Anastasov, T., Timovska, M., Michaut, P., Joannelle, P., Lachmann, M., Pavlidou, K., Debreceni, P., Nagy, D., Nugent, C., Di Fonzo, M., Leisavnieks, E., Jaunkiķis, Z., Mitri, G., Repšienė, S., Assali, F., Mharzi Alaoui, H., Botnen, D., Piwnicki, J., Szczygieł, R., Janeira, M., Borges, A., Sbirnea, R., Mara, S., Eritsov, A., Longauerová, V., Jakša, J., Enriquez, E., Lopez, A., Sandahl, L., Reinhard, M., Conedera, M., Pezzatti, B., Dursun, K. T., Baltaci, U., Moffat, A., 2017. Forest fires in Europe, Middle East and North Africa 2016. Publications Office of the European Union, Luxembourg. ISBN:978-92-79-71292-0, https://doi.org/10.2760/17690</p> <p>Goldammer, J. G., Mangeon, S., Keywood, M., Kaiser, J. W., de Groot, W. J., Gunawan, D., Gan, C., Field, R., Sofiev, M., Baklanov, A., 2018. Vegetation Fire and Smoke Pollution Warning and Advisory System (VFSP-WAS): concept note and expert recommendations. Vol. 235 of GAW Report series. World Meteorological Organization, Geneva, Switzerland. https://library.wmo.int/doc_num.php?explnum_id=4519</p> <p>Giglio, L., Boschetti, L., Roy, D., Humber, M., Justice, C.O., The Collection 6 MODIS Burned Area Mapping Algorithm and Product. Remote Sensing of Environment (submitted June 2018).</p> <p>https://data.jrc.ec.europa.eu/dataset/e6f7a4e7-1f64-4ba9-9363-6bc864ab4666</p>
Indicator description
Accumulate burnt area due to wildfires
Methodology
Zonal sum of the burnt area due to wildfires inside the urban center.
Methodology Short
Zonal Statistics (count)
Temporal Coverage
2015, 2020, 2024
Uncertainties & Best practices
The accumulate periods are the following: 2012-2015 for the year 2015, 2016-2020 for the year 2020 and 2020-2024 for the year 2024

Indicator thematic area
Hazard and Risk
Indicator group
Combined events
Attribute ID
HZ_CEVT_EVT_XXXX
Indicator Name
Total number of events
Units
Number of events
Data Source
Claassen, J.N., Ward, P.J., Daniell, J. et al. A new method to compile global multi-hazard event sets. Sci Rep 13, 13808 (2023). https://doi.org/10.1038/s41598-023-40400-5 MYRIAD – Hazard Event Sets (MYRIAD-HES) https://zenodo.org/records/8269680
Indicator description
Total number of events
Methodology
Spatial join and count of the events (1 event has 1 or multiple hazards) that overlay the urban center. The total number corresponds to the previous year, the precedent year and the next year.
Methodology Short
Spatial join
Temporal Coverage
2005, 2010, 2015
Uncertainties & Best practices

Indicator thematic area
Hazard and Risk
Indicator group
Combined events
Attribute ID
HZ_CEVT_HZ_XXXX
Indicator Name
Total number of hazards
Units
Number of hazards
Data Source
Claassen, J.N., Ward, P.J., Daniell, J. et al. A new method to compile global multi-hazard event sets. Sci Rep 13, 13808 (2023). https://doi.org/10.1038/s41598-023-40400-5 MYRIAD – Hazard Event Sets (MYRIAD-HES) https://zenodo.org/records/8269680
Indicator description
Total number of hazards
Methodology
Spatial join and count of the hazards (1 hazards can happen more than once during an event and in multiple events) that overlay the urban center. The total number corresponds to the previous year, the precedent year and the next year.
Methodology Short
Spatial join
Temporal Coverage
2005, 2010, 2015
Uncertainties & Best practices

Indicator thematic area
Hazard and Risk
Indicator group
Combined events
Attribute ID
HZ_CEV_EAR_XXXX
Indicator Name
Earthquakes occurrence
Units
Number of hazards type earthquakes
Data Source
Claassen, J.N., Ward, P.J., Daniell, J. et al. A new method to compile global multi-hazard event sets. Sci Rep 13, 13808 (2023). https://doi.org/10.1038/s41598-023-40400-5 MYRIAD – Hazard Event Sets (MYRIAD-HES) https://zenodo.org/records/8269680
Indicator description
Total number of hazards type earthquakes
Methodology
Spatial join and count of the hazards (when hazard is classified as earthquakes) that overlay the urban center. The total number corresponds to the previous year, the precedent year and the next year.
Methodology Short
Spatial join
Temporal Coverage
2005, 2010, 2015
Uncertainties & Best practices

Indicator thematic area
Hazard and Risk
Indicator group
Combined events
Attribute ID
HZ_CEV_EWI_XXXX
Indicator Name
Extreme wind occurrence
Units
Number of hazards type extreme wind
Data Source
Claassen, J.N., Ward, P.J., Daniell, J. et al. A new method to compile global multi-hazard event sets. Sci Rep 13, 13808 (2023). https://doi.org/10.1038/s41598-023-40400-5 MYRIAD – Hazard Event Sets (MYRIAD-HES) https://zenodo.org/records/8269680
Indicator description
Total number of hazards type extreme wind
Methodology
Spatial join and count of the hazards (when hazard is classified as extreme wind) that overlay the urban center. The total number corresponds to the previous year, the precedent year and the next year.
Methodology Short
Spatial join
Temporal Coverage
2005, 2010, 2015
Uncertainties & Best practices

Indicator thematic area
Hazard and Risk
Indicator group
Combined events
Attribute ID
HZ_CEVTSU_XXXX
Indicator Name
Tsunami occurrence
Units
Number of hazards type extreme wind
Data Source
Claassen, J.N., Ward, P.J., Daniell, J. et al. A new method to compile global multi-hazard event sets. Sci Rep 13, 13808 (2023). https://doi.org/10.1038/s41598-023-40400-5 MYRIAD – Hazard Event Sets (MYRIAD-HES) https://zenodo.org/records/8269680
Indicator description
Total number of hazards type tsunami
Methodology
Spatial join and count of the hazards (when hazard is classified as tsunami) that overlay the urban center. The total number corresponds to the previous year, the precedent year and the next year.
Methodology Short
Spatial join
Temporal Coverage
2005, 2010, 2015
Uncertainties & Best practices

Indicator thematic area
Hazard and Risk
Indicator group
Combined events
Attribute ID
HZ_CEV_HEW_XXXX
Indicator Name
Heatwaves occurrence
Units
Number of hazards type heatwaves
Data Source
Claassen, J.N., Ward, P.J., Daniell, J. et al. A new method to compile global multi-hazard event sets. Sci Rep 13, 13808 (2023). https://doi.org/10.1038/s41598-023-40400-5
MYRIAD – Hazard Event Sets (MYRIAD-HES) https://zenodo.org/records/8269680
Indicator description
Total number of hazards type heatwaves
Methodology
Spatial join and count of the hazards (when hazard is classified as heatwave) that overlay the urban center. The total number corresponds to the previous year, the precedent year and the next year.
Methodology Short
Spatial join
Temporal Coverage
2005, 2010, 2015
Uncertainties & Best practices

Indicator thematic area
Hazard and Risk
Indicator group
Combined events
Attribute ID
HZ_CEV_DRO_XXXX
Indicator Name
Droughts occurrence
Units
Number of hazards type drought
Data Source
Claassen, J.N., Ward, P.J., Daniell, J. et al. A new method to compile global multi-hazard event sets. Sci Rep 13, 13808 (2023). https://doi.org/10.1038/s41598-023-40400-5
MYRIAD – Hazard Event Sets (MYRIAD-HES) https://zenodo.org/records/8269680
Indicator description
Total number of hazards type drought
Methodology
Spatial join and count of the hazards (when hazard is classified as drought) that overlay the urban center. The total number corresponds to the previous year, the precedent year and the next year.
Methodology Short
Spatial join
Temporal Coverage
2005, 2010, 2015
Uncertainties & Best practices

Indicator thematic area
Hazard and Risk
Indicator group
Combined events
Attribute ID
HZ_CEV_FLO_XXXX
Indicator Name
Floods occurrence
Units
Number of hazards type flood
Data Source
Claassen, J.N., Ward, P.J., Daniell, J. et al. A new method to compile global multi-hazard event sets. Sci Rep 13, 13808 (2023). https://doi.org/10.1038/s41598-023-40400-5 MYRIAD – Hazard Event Sets (MYRIAD-HES) https://zenodo.org/records/8269680
Indicator description
Total number of hazards type flood
Methodology
Spatial join and count of the hazards (when hazard is classified as flood) that overlay the urban center. The total number corresponds to the previous year, the precedent year and the next year.
Methodology Short
Spatial join
Temporal Coverage
2005, 2010, 2015
Uncertainties & Best practices

Indicator thematic area
Hazard and Risk
Indicator group
Combined events
Attribute ID
HZ_CEVT_CY_XXXX
Indicator Name
Tropical Cyclones occurrence
Units
Number of hazards type tropical cyclones
Data Source
Claassen, J.N., Ward, P.J., Daniell, J. et al. A new method to compile global multi-hazard event sets. Sci Rep 13, 13808 (2023). https://doi.org/10.1038/s41598-023-40400-5 MYRIAD – Hazard Event Sets (MYRIAD-HES) https://zenodo.org/records/8269680
Indicator description
Total number of hazards type tropical cyclones
Methodology
Spatial join and count of the hazards (when hazard is classified as tropical cyclones) that overlay the urban center. The total number corresponds to the previous year, the precedent year and the next year.
Methodology Short
Spatial join
Temporal Coverage
2005, 2010, 2015
Uncertainties & Best practices

Indicator thematic area
Hazard and Risk
Indicator group
Combined events
Attribute ID
HZ_CEV_VOL_XXXX
Indicator Name
Volcanic eruptions occurrence
Units
Number of hazards type volcanic eruption
Data Source
Claassen, J.N., Ward, P.J., Daniell, J. et al. A new method to compile global multi-hazard event sets. Sci Rep 13, 13808 (2023). https://doi.org/10.1038/s41598-023-40400-5 MYRIAD – Hazard Event Sets (MYRIAD-HES) https://zenodo.org/records/8269680
Indicator description
Total number of hazards type volcanic eruption
Methodology
Spatial join and count of the hazards (when hazard is classified as volcano) that overlay the urban center. The total number corresponds to the previous year, the precedent year and the next year.
Methodology Short
Spatial join
Temporal Coverage
2005, 2010, 2015
Uncertainties & Best practices

Indicator thematic area
Hazard and Risk
Indicator group
Combined events
Attribute ID
HZ_CEV_LAN_XXXX
Indicator Name
Landslide occurrence
Units
Number of hazards type landslide
Data Source
Claassen, J.N., Ward, P.J., Daniell, J. et al. A new method to compile global multi-hazard event sets. Sci Rep 13, 13808 (2023). https://doi.org/10.1038/s41598-023-40400-5 MYRIAD – Hazard Event Sets (MYRIAD-HES) https://zenodo.org/records/8269680
Indicator description
Total number of hazards type landslide
Methodology
Spatial join and count of the hazards (when hazard is classified as landslide) that overlay the urban center. The total number corresponds to the previous year, the precedent year and the next year.
Methodology Short
Spatial join
Temporal Coverage
2005, 2010, 2015
Uncertainties & Best practices

Indicator thematic area
Hazard and Risk
Indicator group
Combined events
Attribute ID
HZ_CEVCOW_XXXX
Indicator Name
Cold wave occurrence
Units
Number of hazards type cold wave
Data Source
Claassen, J.N., Ward, P.J., Daniell, J. et al. A new method to compile global multi-hazard event sets. Sci Rep 13, 13808 (2023). https://doi.org/10.1038/s41598-023-40400-5
MYRIAD – Hazard Event Sets (MYRIAD-HES) https://zenodo.org/records/8269680
Indicator description
Total number of hazards type cold wave
Methodology
Spatial join and count of the hazards (when hazard is classified as cold wave) that overlay the urban center. The total number corresponds to the previous year, the precedent year and the next year.
Methodology Short
Spatial join
Temporal Coverage
2005, 2010, 2015
Uncertainties & Best practices

Indicator thematic area
Hazard and Risk
Indicator group
Combined events
Attribute ID
HZ_CEV_WLF_XXXX
Indicator Name
Wildfire occurrence
Units
Number of hazards type wildfire
Data Source
Claassen, J.N., Ward, P.J., Daniell, J. et al. A new method to compile global multi-hazard event sets. Sci Rep 13, 13808 (2023). https://doi.org/10.1038/s41598-023-40400-5 MYRIAD – Hazard Event Sets (MYRIAD-HES) https://zenodo.org/records/8269680
Indicator description
Total number of hazards type wildfire
Methodology
Spatial join and count of the hazards (when hazard is classified as wildfire) that overlay the urban center. The total number corresponds to the previous year, the precedent year and the next year.
Methodology Short
Spatial join
Temporal Coverage
2005, 2010, 2015
Uncertainties & Best practices

Indicator thematic area
Hazard and Risk
Indicator group
Combined events
Attribute ID
HZ_CEV_MHZ_XXXX
Indicator Name
Maximum number of hazards per event
Units
Maximum number of hazards per event
Data Source
Claassen, J.N., Ward, P.J., Daniell, J. et al. A new method to compile global multi-hazard event sets. Sci Rep 13, 13808 (2023). https://doi.org/10.1038/s41598-023-40400-5 MYRIAD – Hazard Event Sets (MYRIAD-HES) https://zenodo.org/records/8269680
Indicator description
Maximum number of hazards per event
Methodology
Spatial join and count of the number of hazards per event that overlay the urban center. Selection of the maximum number. The total number corresponds to the previous year, the precedent year and the next year.
Methodology Short
Spatial join
Temporal Coverage
2005, 2010, 2015
Uncertainties & Best practices

Indicator thematic area
Health
Indicator group
Number of facilities
Attribute ID
HL_FCL_HOS_XXXX
Indicator Name
Number of hospitals
Units
Units of facilities
Data Source
https://www.healthsites.io/map
Downloaded on 27/06/2024
World.zip (last update at: Tue Jun 25 2024 00:00:03 GMT+0200 (Central European Summer Time))
Indicator description
Number of health facilities (hospitals) in the urban center.
Methodology
Zonal count of the points and polygons. Point and polygon data are compared to exclude duplicates; any feature class which attribute contains the word 'hospital' is reclassified as hospital facility.
Methodology Short
Zonal Statistics (count)
Temporal Coverage
2024
Uncertainties & Best practices
The data is derived from OSM. OSM limitations, completeness and accuracy are inherited.

Indicator thematic area
Health
Indicator group
Number of facilities
Attribute ID
HL_FCL_PHA_XXXX
Indicator Name
Number of pharmacies
Units
Units of facilities
Data Source
https://www.healthsites.io/map
Downloaded on 27/06/2024
World.zip (last update at: Tue Jun 25 2024 00:00:03 GMT+0200 (Central European Summer Time))
Indicator description
Number of health facilities (pharmacies) in the urban center.
Methodology
Zonal count of the points and polygons. Point and polygon data are compared to exclude duplicates; any feature class which attribute contains the word 'pharmacy' but not 'hospital' is reclassified as pharmacy facility.
Methodology Short
Zonal Statistics (count)
Temporal Coverage
2024
Uncertainties & Best practices
The data is derived from OSM. OSM limitations, completeness and accuracy are inherited.

Indicator thematic area
Health
Indicator group
Number of facilities per capita
Attribute ID
HL_FPC_HOS_XXXX
Indicator Name
Number of hospitals per capita
Units
Number of facilities per 1000000 inhabitants
Data Source
https://www.healthsites.io/map
Downloaded on 27/06/2024
World.zip (last update at: Tue Jun 25 2024 00:00:03 GMT+0200 (Central European Summer Time))
Schiavina M., Freire S., Carioli A., MacManus K. (2023):
GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC)
PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CF
Indicator description
Number of health facilities (hospitals) per capita in the urban center.
Methodology
Ratio between the number of facilities and total population in the urban center.
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices
The data is derived from OSM. OSM limitations, completeness and accuracy are inherited.

Indicator thematic area
Health
Indicator group
Number of facilities per capita
Attribute ID
HL_FPC_PHA_XXXX
Indicator Name
Number of pharmacies per capita
Units
Number of facilities per 1000000 inhabitants
Data Source
https://www.healthsites.io/map
Downloaded on 27/06/2024
World.zip (last update at: Tue Jun 25 2024 00:00:03 GMT+0200 (Central European Summer Time))
Schiavina M., Freire S., Carioli A., MacManus K. (2023):
GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC)
PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE
Indicator description
Number of health facilities (pharmacies) per capita in the urban center.
Methodology
Ratio between the number of facilities and total population in the urban center.
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices
The data is derived from OSM. OSM limitations, completeness and accuracy are inherited.

Indicator thematic area
Health
Indicator group
Facilities density
Attribute ID
HL_FDE_HOS_XXXX
Indicator Name
Hospitals density
Units
Units of facilities per squared kilometer
Data Source
https://www.healthsites.io/map
Downloaded on 27/06/2024
World.zip (last update at: Tue Jun 25 2024 00:00:03 GMT+0200 (Central European Summer Time))
Indicator description
Number of health facilities (hospitals) per urban center area.
Methodology
Ratio between the number of facilities and the total area of the urban center (in squared kilometers).
Methodology Short
Ratio
Temporal Coverage
2024
Uncertainties & Best practices
The data is derived from OSM. OSM limitations, completeness and accuracy are inherited.

Indicator thematic area
Health
Indicator group
Facilities density
Attribute ID
HL_FDE_PHA_XXXX
Indicator Name
Pharmacies density
Units
Units of facilities per squared kilometer
Data Source
https://www.healthsites.io/map
Downloaded on 27/06/2024
World.zip (last update at: Tue Jun 25 2024 00:00:03 GMT+0200 (Central European Summer Time))
Indicator description
Number of health facilities (pharmacies) per urban center area.
Methodology
Ratio between the number of facilities and the total area of the urban center (in squared kilometers).
Methodology Short
Ratio
Temporal Coverage
2024
Uncertainties & Best practices
The data is derived from OSM. OSM limitations, completeness and accuracy are inherited.

Indicator thematic area
Health
Indicator group
Population with access to facilities
Attribute ID
HL_POP_HOS_XXXX
Indicator Name
Population with access to hospitals
Units
Number of inhabitants
Data Source
https://www.healthsites.io/map
Downloaded on 27/06/2024
World.zip (last update at: Tue Jun 25 2024 00:00:03 GMT+0200 (Central European Summer Time))
Schiavina M., Freire S., Carioli A., MacManus K. (2023):
GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC)
PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE
Indicator description
Population living within a kilometer buffer of a hospital facility, inside the urban center.
Methodology
Zonal statistics (sum) of the population within a 1 km buffer of a hospital facility, inside the urban center.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2025
Uncertainties & Best practices
The data is derived from OSM. OSM limitations, completeness and accuracy are inherited.

Indicator thematic area
Health
Indicator group
Population with access to facilities
Attribute ID
HL_POP_PHA_XXXX
Indicator Name
Population with access to pharmacies
Units
Number of inhabitants
Data Source
https://www.healthsites.io/map
Downloaded on 27/06/2024
World.zip (last update at: Tue Jun 25 2024 00:00:03 GMT+0200 (Central European Summer Time))
Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CF
Indicator description
Population living within a kilometer buffer of a pharmacy facility, inside the urban center.
Methodology
Zonal statistics (sum) of the population within a 1 km buffer of a pharmacy facility, inside the urban center.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2025
Uncertainties & Best practices
The data is derived from OSM. OSM limitations, completeness and accuracy are inherited.

Indicator thematic area
Health
Indicator group
Share of population with access to facilities
Attribute ID
HL_SHP_HOS_XXXX
Indicator Name
Share of population with access to hospitals
Units
%
Data Source
https://www.healthsites.io/map
Downloaded on 27/06/2024
World.zip (last update at: Tue Jun 25 2024 00:00:03 GMT+0200 (Central European Summer Time))
Schiavina M., Freire S., Carioli A., MacManus K. (2023):
GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC)
PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE
Indicator description
Share of population living within a kilometer buffer of a hospital facility, inside the urban center over total urban centre population.
Methodology
Ratio
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices
The data is derived from OSM. OSM limitations, completeness and accuracy are inherited.

Indicator thematic area
Health
Indicator group
Share of population with access to facilities
Attribute ID
HL_SHP_PHA_XXXX
Indicator Name
Share of population with access to pharmacies
Units
%
Data Source
https://www.healthsites.io/map
Downloaded on 27/06/2024
World.zip (last update at: Tue Jun 25 2024 00:00:03 GMT+0200 (Central European Summer Time))
Schiavina M., Freire S., Carioli A., MacManus K. (2023):
GHS-POP R2023A - GHS population grid multitemporal (1975-2030).European Commission, Joint Research Centre (JRC)
PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf , doi: 10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE
Indicator description
Share of population living within a kilometer buffer of a pharmacy facility, inside the urban center over total urban centre population.
Methodology
Ratio
Methodology Short
Ratio
Temporal Coverage
2025
Uncertainties & Best practices
The data is derived from OSM. OSM limitations, completeness and accuracy are inherited.

Indicator thematic area
Infrastructures
Indicator group
Roads
Attribute ID
IN_ROA_LEN_XXXX
Indicator Name
Road length
Units
m
Data Source
Overture Maps Foundation, overturemaps.org . Accessed on 24/07/2024
Indicator description
Total road length inside the urban center
Methodology
Length calculation in local geographic projection and sum of the features' length inside the urban center.
Methodology Short
Calculate geometry (length)
Temporal Coverage
2024
Uncertainties & Best practices

Indicator thematic area
Infrastructures
Indicator group
Roads
Attribute ID
IN_ROA_DEN_XXXX
Indicator Name
Road density network
Units
m/m ²
Data Source
Overture Maps Foundation, overturemaps.org . Accessed on 24/07/2024
Indicator description
Road network density, total road length inside the urban center divided by the urban center area
Methodology
Division between total length in the urban center and the urban center area.
Methodology Short
Division
Temporal Coverage
2024
Uncertainties & Best practices

Indicator thematic area
Infrastructures
Indicator group
Critical Infrastructures Spatial Index (CISI)
Attribute ID
IN_CIS_ALL_XXXX
Indicator Name
Critical Infrastructures Spatial Index
Units
dimensionless
Data Source
Nirandjan, S., Koks, E.E., Ward, P.J. <i>et al.</i> A spatially-explicit harmonized global dataset of critical infrastructure. <i>Sci Data</i> 9 , 150 (2022). https://doi.org/10.1038/s41597-022-01218-4
Data: A spatially-explicit harmonized global dataset of critical infrastructure (zenodo.org)
Indicator description
Critical Infrastructures Spatial Index is an index that spatially explicit indicates the coverage or lack of infrastructures.
Methodology
Sum of the CISI score by urban center, normalized by the maximum value for all urban centers
Methodology Short
Sum and normalization
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
Infrastructures
Indicator group
Critical Infrastructures Spatial Index (CISI)
Attribute ID
IN_CIS_ENE_XXXX
Indicator Name
Critical Infrastructures Spatial Index for the energy sector
Units
dimensionless
Data Source
Nirandjan, S., Koks, E.E., Ward, P.J. <i>et al.</i> A spatially-explicit harmonized global dataset of critical infrastructure. <i>Sci Data</i> 9 , 150 (2022). https://doi.org/10.1038/s41597-022-01218-4 Data: A spatially-explicit harmonized global dataset of critical infrastructure (zenodo.org)
Indicator description
Sectorial CISI is an index that spatially explicit indicates the coverage or lack of infrastructures per sector.
Methodology
Area weighted mean subsector score for the energy system.
Methodology Short
Area weighted average
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
Infrastructures
Indicator group
Critical Infrastructures Spatial Index (CISI)
Attribute ID
IN_CIS_TRA_XXXX
Indicator Name
Critical Infrastructures Spatial Index for the transportation sector
Units
dimensionless
Data Source
Nirandjan, S., Koks, E.E., Ward, P.J. <i>et al.</i> A spatially-explicit harmonized global dataset of critical infrastructure. <i>Sci Data</i> 9 , 150 (2022). https://doi.org/10.1038/s41597-022-01218-4
Data: A spatially-explicit harmonized global dataset of critical infrastructure (zenodo.org)
Indicator description
Sectorial CISI is an index that spatially explicit indicates the coverage or lack of infrastructures per sector.
Methodology
Area weighted mean subsector score for the transportation system.
Methodology Short
Area weighted average
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
Infrastructures
Indicator group
Critical Infrastructures Spatial Index (CISI)
Attribute ID
IN_CIS_WAT_XXXX
Indicator Name
Critical Infrastructures Spatial Index for the water sector
Units
dimensionless
Data Source
Nirandjan, S., Koks, E.E., Ward, P.J. <i>et al.</i> A spatially-explicit harmonized global dataset of critical infrastructure. <i>Sci Data</i> 9 , 150 (2022). https://doi.org/10.1038/s41597-022-01218-4
Data: A spatially-explicit harmonized global dataset of critical infrastructure (zenodo.org)
Indicator description
Sectorial CISI is an index that spatially explicit indicates the coverage or lack of infrastructures per sector.
Methodology
Area weighted mean subsector score for the water system.
Methodology Short
Area weighted average
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
Infrastructures
Indicator group
Critical Infrastructures Spatial Index (CISI)
Attribute ID
IN_CIS_WAS_XXXX
Indicator Name
Critical Infrastructures Spatial Index for the waste sector
Units
dimensionless
Data Source
Nirandjan, S., Koks, E.E., Ward, P.J. <i>et al.</i> A spatially-explicit harmonized global dataset of critical infrastructure. <i>Sci Data</i> 9 , 150 (2022). https://doi.org/10.1038/s41597-022-01218-4
Data: A spatially-explicit harmonized global dataset of critical infrastructure (zenodo.org)
Indicator description
Sectorial CISI is an index that spatially explicit indicates the coverage or lack of infrastructures per sector.
Methodology
Area weighted mean subsector score for the waste system.
Methodology Short
Area weighted average
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
Infrastructures
Indicator group
Critical Infrastructures Spatial Index (CISI)
Attribute ID
IN_CIS_TEL_XXXX
Indicator Name
Critical Infrastructures Spatial Index for the telecommunications sector
Units
dimensionless
Data Source
Nirandjan, S., Koks, E.E., Ward, P.J. <i>et al.</i> A spatially-explicit harmonized global dataset of critical infrastructure. <i>Sci Data</i> 9 , 150 (2022). https://doi.org/10.1038/s41597-022-01218-4
Data: A spatially-explicit harmonized global dataset of critical infrastructure (zenodo.org)
Indicator description
Sectorial CISI is an index that spatially explicit indicates the coverage or lack of infrastructures per sector.
Methodology
Area weighted mean subsector score for the telecommunications system.
Methodology Short
Area weighted average
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
Infrastructures
Indicator group
Critical Infrastructures Spatial Index (CISI)
Attribute ID
IN_CIS_HEA_XXXX
Indicator Name
Critical Infrastructures Spatial Index for the health sector
Units
dimensionless
Data Source
Nirandjan, S., Koks, E.E., Ward, P.J. <i>et al.</i> A spatially-explicit harmonized global dataset of critical infrastructure. <i>Sci Data</i> 9 , 150 (2022). https://doi.org/10.1038/s41597-022-01218-4 Data: A spatially-explicit harmonized global dataset of critical infrastructure (zenodo.org)
Indicator description
Sectorial CISI is an index that spatially explicit indicates the coverage or lack of infrastructures per sector.
Methodology
Area weighted mean subsector score for the health system.
Methodology Short
Area weighted average
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
Infrastructures
Indicator group
Critical Infrastructures Spatial Index (CISI)
Attribute ID
IN_CIS_EDU_XXXX
Indicator Name
Critical Infrastructures Spatial Index for the education sector
Units
dimensionless
Data Source
Nirandjan, S., Koks, E.E., Ward, P.J. <i>et al.</i> A spatially-explicit harmonized global dataset of critical infrastructure. <i>Sci Data</i> 9 , 150 (2022). https://doi.org/10.1038/s41597-022-01218-4
Data: A spatially-explicit harmonized global dataset of critical infrastructure (zenodo.org)
Indicator description
Sectorial CISI is an index that spatially explicit indicates the coverage or lack of infrastructures per sector.
Methodology
Area weighted mean subsector score for the education system.
Methodology Short
Area weighted average
Temporal Coverage
2020
Uncertainties & Best practices

Indicator thematic area
Land Use Land Cover
Indicator group
Land Use Land Cover
Attribute ID
LU_HEC_020_XXXX
Indicator Name
Shrubs land cover area
Units
Hectares
Data Source
Buchhorn, M. ; Lesiv, M. ; Tsendbazar, N. - E. ; Herold, M. ; Bertels, L. ; Smets, B. Copernicus Global Land Cover Layers-Collection 2. Remote Sensing 2020, 12Volume 108, 1044. doi:10.3390/rs12061044
Indicator description
Shrubs (woody perennial plants with persistent and woody stems and without any defined main stem being less than 5 m tall) total area inside the urban center
Methodology
Sum of the pixels' area classified as shrub (class 20) that overlay the urban center.
Methodology short
Area
Temporal Coverage
2015, 2019
Uncertainties & Best practices

Indicator thematic area
Land Use Land Cover
Indicator group
Land Use Land Cover
Attribute ID
LU_HEC_030_XXXX
Indicator Name
Herbaceous vegetation land cover area
Units
Hectares
Data Source
Buchhorn, M. ; Lesiv, M. ; Tsendbazar, N. - E. ; Herold, M. ; Bertels, L. ; Smets, B. Copernicus Global Land Cover Layers-Collection 2. Remote Sensing 2020, 12Volume 108, 1044. doi:10.3390/rs12061044
Indicator description (xxx max words)
Herbaceous vegetation (plants without persistent stem or shoots above ground and lacking definite firm structure) total area inside the urban center
Methodology
Sum of the pixels' area classified as herbaceous vegetation (class 30) that overlay the urban center.
Methodology short
Area
Temporal Coverage
2015, 2019
Uncertainties & Best practices

Indicator thematic area
Land Use Land Cover
Indicator group
Land Use Land Cover
Attribute ID
LU_HEC_040_XXXX
Indicator Name
Cultivated and managed vegetation / agriculture land use area
Units
Hectares
Data Source
Buchhorn, M. ; Lesiv, M. ; Tsendbazar, N. - E. ; Herold, M. ; Bertels, L. ; Smets, B. Copernicus Global Land Cover Layers-Collection 2. Remote Sensing 2020, 12Volume 108, 1044. doi:10.3390/rs12061044
Indicator description
Cultivated and managed vegetation / agriculture (lands covered with temporary crops followed by harvest and a bare soil period) total area inside the urban center.
Methodology
Sum of the pixels' area classified as cultivated and managed vegetation / agriculture (class 40) that overlay the urban center
Methodology short
Area
Temporal Coverage
2015, 2019
Uncertainties & Best practices

Indicator thematic area
Land Use Land Cover
Indicator group
Land Use Land Cover
Attribute ID
LU_HEC_050_XXXX
Indicator Name
Buildings and other man-made structures land use area
Units
Hectares
Data Source
Buchhorn, M. ; Lesiv, M. ; Tsendbazar, N. - E. ; Herold, M. ; Bertels, L. ; Smets, B. Copernicus Global Land Cover Layers-Collection 2. Remote Sensing 2020, 12Volume 108, 1044. doi:10.3390/rs12061044
Indicator description (xxx max words)
Total area of land covered by buildings and other man-made structures inside the urban center.
Methodology
Sum of the pixels' area classified as urban / built (class 50) that overlay the urban center
Methodology short
Area
Temporal Coverage
2015, 2019
Uncertainties & Best practices

Indicator thematic area
Land Use Land Cover
Indicator group
Land Use Land Cover
Attribute ID
LU_HEC_060_XXXX
Indicator Name
Bare / sparse vegetation land cover area
Units
hectares
Data Source
Buchhorn, M. ; Lesiv, M. ; Tsendbazar, N. - E. ; Herold, M. ; Bertels, L. ; Smets, B. Copernicus Global Land Cover Layers-Collection 2. Remote Sensing 2020, 12Volume 108, 1044. doi:10.3390/rs12061044
Indicator description (xxx max words)
Bare / sparse vegetation (lands with exposed soil, sand, or rocks and never has more than 10 % vegetated cover during any time of the year) total area inside the urban center.
Methodology
Sum of the pixels' area classified bare / sparse vegetation (class 60) that overlay the urban center
Methodology short
Area
Temporal Coverage
2015, 2019
Uncertainties & Best practices

Indicator thematic area
Land Use Land Cover
Indicator group
Land Use Land Cover
Attribute ID
LU_HEC_070_XXXX
Indicator Name
Snow and ice land cover area
Units
Hectares
Data Source
Buchhorn, M.; Lesiv, M.; Tsendsazar, N. - E.; Herold, M.; Bertels, L.; Smets, B. Copernicus Global Land Cover Layers-Collection 2. Remote Sensing 2020, 12Volume 108, 1044. doi:10.3390/rs12061044
Indicator description (xxx max words)
Snow and ice land cover (lands with exposed soil, sand, or rocks and never has more than 10 % vegetated cover during any time of the year) total area inside the urban center.
Methodology
Sum of the pixels' area classified as snow and ice land cover (class 70) that overlay the urban center
Methodology short
Area
Temporal Coverage
2015, 2019
Uncertainties & Best practices

Indicator thematic area
Land Use Land Cover
Indicator group
Land Use Land Cover
Attribute ID
LU_HEC_080_XXXX
Indicator Name
Permanent water bodies land cover area
Units
Hectares
Data Source
Buchhorn, M.; Lesiv, M.; Tsendlbazar, N. - E.; Herold, M.; Bertels, L.; Smets, B. Copernicus Global Land Cover Layers-Collection 2. Remote Sensing 2020, 12Volume 108, 1044. doi:10.3390/rs12061044
Indicator description (xxx max words)
Permanent water bodies (lakes, reservoirs, and rivers - can be either fresh or salt-water bodies -) total area inside the urban center.
Methodology
Sum of the pixels' area classified as permanent water bodies (class 80) that overlay the urban center
Methodology short
Area
Temporal Coverage
2015, 2019
Uncertainties & Best practices

Indicator thematic area
Land Use Land Cover
Indicator group
Land Use Land Cover
Attribute ID
LU_HEC_090_XXXX
Indicator Name
Herbaceous wetland land cover area
Units
Hectares
Data Source
Buchhorn, M.; Lesiv, M.; Tsendlbazar, N. - E.; Herold, M.; Bertels, L.; Smets, B. Copernicus Global Land Cover Layers-Collection 2. Remote Sensing 2020, 12Volume 108, 1044. doi:10.3390/rs12061044
Indicator description
Herbaceous wetland (lands with a permanent mixture of water and herbaceous or woody vegetation; the vegetation can be present in either salt, brackish, or fresh water) total area inside the urban center.
Methodology
Sum of the pixels' area classified as herbaceous wetland (class 90) that overlay the urban center
Methodology short
Area
Temporal Coverage
2015, 2019
Uncertainties & Best practices

Indicator thematic area
Land Use Land Cover
Indicator group
Land Use Land Cover
Attribute ID
LU_HEC_100_XXXX
Indicator Name
Moss and lichen land cover area
Units
Hectares
Data Source
Buchhorn, M.; Lesiv, M.; Tsendlbazar, N. - E.; Herold, M.; Bertels, L.; Smets, B. Copernicus Global Land Cover Layers-Collection 2. Remote Sensing 2020, 12Volume 108, 1044. doi:10.3390/rs12061044
Indicator description (xxx max words)
Moss and lichen total area inside the urban center.
Methodology
Sum of the pixels' area classified as moss and lichen (class 100) that overlay the urban center
Methodology short
Area
Temporal Coverage
2015, 2019
Uncertainties & Best practices

Indicator thematic area
Land Use Land Cover
Indicator group
Land Use Land Cover
Attribute ID
LU_HEC_111_XXXX
Indicator Name
Closed forest, evergreen needle leaf land cover area
Units
Hectares
Data Source
Buchhorn, M.; Lesiv, M.; Tsendlbazar, N. - E.; Herold, M.; Bertels, L.; Smets, B. Copernicus Global Land Cover Layers-Collection 2. Remote Sensing 2020, 12Volume 108, 1044. doi:10.3390/rs12061044
Indicator description (xxx max words)
Closed forest, evergreen needle leaf (tree canopy >70 %, almost all needle leaf trees remain green all year; canopy is never without green foliage) total area inside the urban center.
Methodology
Sum of the pixels' area classified as closed forest (class 111) that overlay the urban center
Methodology short
Area
Temporal Coverage
2015, 2019
Uncertainties & Best practices

Indicator thematic area
Land Use Land Cover
Indicator group
Land Use Land Cover
Attribute ID
LU_HEC_112_XXXX
Indicator Name
Closed forest, evergreen broad leaf land cover area
Units
Hectares
Data Source
Buchhorn, M.; Lesiv, M.; Tsendlbazar, N. - E.; Herold, M.; Bertels, L.; Smets, B. Copernicus Global Land Cover Layers-Collection 2. Remote Sensing 2020, 12Volume 108, 1044. doi:10.3390/rs12061044
Indicator description
Closed forest, evergreen broad leaf (tree canopy >70 %, almost all broadleaf trees remain green year round; canopy is never without green foliage) total area inside the urban center.
Methodology
Sum of the pixels' area classified as closed forest (class 112) that overlay the urban center
Methodology short
Area
Temporal Coverage
2015, 2019
Uncertainties & Best practices

Indicator thematic area
Land Use Land Cover
Indicator group
Land Use Land Cover
Attribute ID
LU_HEC_113_XXXX
Indicator Name
Closed forest, deciduous needle leaf land cover area
Units
Hectares
Data Source
Buchhorn, M.; Lesiv, M.; Tsendlbazar, N. - E.; Herold, M.; Bertels, L.; Smets, B. Copernicus Global Land Cover Layers-Collection 2. Remote Sensing 2020, 12Volume 108, 1044. doi:10.3390/rs12061044
Indicator description
Closed forest, deciduous needle leaf (tree canopy >70 %, consists of seasonal needle leaf tree communities with an annual cycle of leaf-on and leaf-off periods) total area inside the urban center.
Methodology
Sum of the pixels' area classified as closed forest (class 113) that overlay the urban center
Methodology short
Area
Temporal Coverage
2015, 2019
Uncertainties & Best practices

Indicator thematic area
Land Use Land Cover
Indicator group
Land Use Land Cover
Attribute ID
LU_HEC_114_XXXX
Indicator Name
Closed forest, deciduous broad leaf land cover area
Units
Hectares
Data Source
Buchhorn, M.; Lesiv, M.; Tsendlbazar, N. - E.; Herold, M.; Bertels, L.; Smets, B. Copernicus Global Land Cover Layers-Collection 2. Remote Sensing 2020, 12Volume 108, 1044. doi:10.3390/rs12061044
Indicator description
Closed forest, deciduous broad leaf (tree canopy >70 %, consists of seasonal broadleaf tree communities with an annual cycle of leaf-on and leaf-off periods) total area inside the urban center.
Methodology
Sum of the pixels' area classified as closed forest (class 114) that overlay the urban center
Methodology short
Area
Temporal Coverage
2015, 2019
Uncertainties & Best practices

Indicator thematic area
Land Use Land Cover
Indicator group
Land Use Land Cover
Attribute ID
LU_HEC_115_XXXX
Indicator Name
Closed forest (mixed) land cover area
Units
Hectares
Data Source
Buchhorn, M.; Lesiv, M.; Tsendsazar, N. - E.; Herold, M.; Bertels, L.; Smets, B. Copernicus Global Land Cover Layers-Collection 2. Remote Sensing 2020, 12Volume 108, 1044. doi:10.3390/rs12061044
Indicator description
Closed forest (mixed) total area inside the urban center.
Methodology
Sum of the pixels' area classified as closed forest (class 115) that overlay the urban center
Methodology short
Area
Temporal Coverage
2015, 2019
Uncertainties & Best practices

Indicator thematic area
Land Use Land Cover
Indicator group
Land Use Land Cover
Attribute ID
LU_HEC_116_XXXX
Indicator Name
Closed forest (other) land cover area
Units
Hectares
Data Source
Buchhorn, M.; Lesiv, M.; Tsendsazar, N. - E.; Herold, M.; Bertels, L.; Smets, B. Copernicus Global Land Cover Layers-Collection 2. Remote Sensing 2020, 12Volume 108, 1044. doi:10.3390/rs12061044
Indicator description
Closed forest (other) total area inside the urban center.
Methodology
Sum of the pixels' area classified as closed forest (class 116) that overlay the urban center
Methodology short
Area
Temporal Coverage
2015, 2019
Uncertainties & Best practices

Indicator thematic area
Land Use Land Cover
Indicator group
Land Use Land Cover
Attribute ID
LU_HEC_121_XXXX
Indicator Name
Open forest, evergreen needle leaf land cover area
Units
Hectares
Data Source
Buchhorn, M.; Lesiv, M.; Tsendsazar, N. - E.; Herold, M.; Bertels, L.; Smets, B. Copernicus Global Land Cover Layers-Collection 2. Remote Sensing 2020, 12Volume 108, 1044. doi:10.3390/rs12061044
Indicator description
Open forest, evergreen needle leaf (top layer- trees 15-70 % and second layer- mixed of shrubs and grassland, almost all needle leaf trees remain green all year; canopy is never without green foliage) total area inside the urban center.
Methodology
Sum of the pixels' area classified as open forest (class 121) that overlay the urban center
Methodology short
Area
Temporal Coverage
2015, 2019
Uncertainties & Best practices

Indicator thematic area
Land Use Land Cover
Indicator group
Land Use Land Cover
Attribute ID
LU_HEC_122_XXXX
Indicator Name
Open forest, evergreen broad leaf land cover area
Units
Hectares
Data Source
Buchhorn, M.; Lesiv, M.; Tsendlbazar, N. - E.; Herold, M.; Bertels, L.; Smets, B. Copernicus Global Land Cover Layers-Collection 2. Remote Sensing 2020, 12Volume 108, 1044. doi:10.3390/rs12061044
Indicator description
Open forest, evergreen broad leaf (top layer- trees 15-70 % and second layer- mixed of shrubs and grassland, almost all broadleaf trees remain green year round; canopy is never without green foliage) total area inside the urban center.
Methodology
Sum of the pixels' area classified as open forest (class 122) that overlay the urban center
Methodology short
Area
Temporal Coverage
2015, 2019
Uncertainties & Best practices

Indicator thematic area
Land Use Land Cover
Indicator group
Land Use Land Cover
Attribute ID
LU_HEC_123_XXXX
Indicator Name
Open forest, deciduous needle leaf land cover area
Units
Hectares
Data Source
Buchhorn, M.; Lesiv, M.; Tsendlbazar, N. - E.; Herold, M.; Bertels, L.; Smets, B. Copernicus Global Land Cover Layers-Collection 2. Remote Sensing 2020, 12Volume 108, 1044. doi:10.3390/rs12061044
Indicator description
Open forest, deciduous needle leaf (top layer- trees 15-70 % and second layer- mixed of shrubs and grassland, consists of seasonal needle leaf tree communities with an annual cycle of leaf-on and leaf-off periods) total area inside the urban center.
Methodology
Sum of the pixels' area classified as open forest (class 123) that overlay the urban center
Methodology short
Area
Temporal Coverage
2015, 2019
Uncertainties & Best practices

Indicator thematic area
Land Use Land Cover
Indicator group
Land Use Land Cover
Attribute ID
LU_HEC_124_XXXX
Indicator Name
Open forest, deciduous broad leaf land cover area
Units
Hectares
Data Source
Buchhorn, M.; Lesiv, M.; Tsendlbazar, N. - E.; Herold, M.; Bertels, L.; Smets, B. Copernicus Global Land Cover Layers-Collection 2. Remote Sensing 2020, 12Volume 108, 1044. doi:10.3390/rs12061044
Indicator description
Open forest, deciduous broad leaf (top layer- trees 15-70 % and second layer- mixed of shrubs and grassland, consists of seasonal broadleaf tree communities with an annual cycle of leaf-on and leaf-off periods) total area inside the urban center.
Methodology
Sum of the pixels' area classified as open forest (class 124) that overlay the urban center
Methodology short
Area
Temporal Coverage
2015, 2019
Uncertainties & Best practices

Indicator thematic area
Land Use Land Cover
Indicator group
Land Use Land Cover
Attribute ID
LU_HEC_125_XXXX
Indicator Name
Open forest (mixed)
Units
Hectares
Data Source
Buchhorn, M.; Lesiv, M.; Tsendsazar, N. - E.; Herold, M.; Bertels, L.; Smets, B. Copernicus Global Land Cover Layers-Collection 2. Remote Sensing 2020, 12Volume 108, 1044. doi:10.3390/rs12061044
Indicator description
Open forest (mixed) total area inside the urban center.
Methodology
Sum of the pixels' area classified as open forest (class 125) that overlay the urban center
Methodology short
Area
Temporal Coverage
2015, 2019
Uncertainties & Best practices

Indicator thematic area
Land Use Land Cover
Indicator group
Land Use Land Cover
Attribute ID
LU_HEC_126_XXXX
Indicator Name
Open forest (other)
Units
Hectares
Data Source
Buchhorn, M.; Lesiv, M.; Tsendsazar, N. - E.; Herold, M.; Bertels, L.; Smets, B. Copernicus Global Land Cover Layers-Collection 2. Remote Sensing 2020, 12Volume 108, 1044. doi:10.3390/rs12061044
Indicator description
Open forest (other) total area inside the urban center.
Methodology
Sum of the pixels' area classified as open forest (class 126) that overlay the urban center
Methodology short
Area
Temporal Coverage
2015, 2019
Uncertainties & Best practices

Indicator thematic area
Natural Systems
Indicator group
Protected areas
Attribute ID
NS_TPA_PER_XXXX
Indicator Name
Share of Terrestrial Protected Areas
Units
%
Data Source
UNEP-WCMC and IUCN (2024), Protected Planet: The World Database on Protected Areas (WDPA) [Online], May 2024, Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net . Download data 19/06/2024
Indicator description
Share of the urban center area covered by terrestrial protected areas over the total urban center area.
Methodology
Share of the urban center area covered by terrestrial protected areas. The protected areas were overlapped with the urban centers to calculate total area overlapping.
Methodology Short
Spatial Join, ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Natural Systems
Indicator group
Protected areas
Attribute ID
NS_MPA_PER_XXXX
Indicator Name
Share of Marine Protected Areas
Units
%
Data Source
UNEP-WCMC and IUCN (2024), Protected Planet: The World Database on Protected Areas (WDPA) [Online], May 2024, Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net . Download data 19/06/2024
Indicator description
Share of the urban center area covered by marine protected areas over the total urban center area.
Methodology
Share of the urban center area covered by marine protected areas. The protected areas were overlapped with the urban centers to calculate total area overlapping.
Methodology Short
Spatial Join, ratio
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Natural Systems
Indicator group
Protected areas
Attribute ID
NS_TPA_NAM_XXXX
Indicator Name
Name of Terrestrial Protected Areas
Units
Categorical
Data Source
UNEP-WCMC and IUCN (2024), Protected Planet: The World Database on Protected Areas (WDPA) [Online], May 2024, Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net . Download data 19/06/2024
Indicator description
List of the names of the terrestrial protected areas overlaying the urban center area.
Methodology
The protected areas were overlaid with the urban centers to list the names of the protected areas.
Methodology Short
Spatial Join
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Natural Systems
Indicator group
Protected areas
Attribute ID
NS_MPA_NAM_XXXX
Indicator Name
Name of Marine Protected Areas
Units
Categorical
Data Source
UNEP-WCMC and IUCN (2024), Protected Planet: The World Database on Protected Areas (WDPA) [Online], May 2024, Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net . Download data 19/06/2024
Indicator description
List of the names of the marine protected areas overlaying the urban center area.
Methodology
The protected areas were overlaid with the urban centers to list the names of the protected areas.
Methodology Short
Spatial Join
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Natural Systems
Indicator group
Protected areas
Attribute ID
NS_TPA_DES_XXXX
Indicator Name
Designation of Terrestrial Protected Areas
Units
Categorical
Data Source
UNEP-WCMC and IUCN (2024), Protected Planet: The World Database on Protected Areas (WDPA) [Online], May 2024, Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net . Download data 19/06/2024
Indicator description
List of the terrestrial protected areas designation overlaying the urban center area.
Methodology
The protected areas were overlaid with the urban centers to list the designations of the protected areas.
Methodology Short
Spatial Join
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Natural Systems
Indicator group
Protected areas
Attribute ID
NS_MPA_DES_XXXX
Indicator Name
Designation of Marine Protected Areas
Units
Categorical
Data Source
UNEP-WCMC and IUCN (2024), Protected Planet: The World Database on Protected Areas (WDPA) [Online], May 2024, Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net . Download data 19/06/2024
Indicator description
List of the marine protected areas designation overlaying the urban center area.
Methodology
The protected areas were overlaid with the urban centers to list the designations of the protected areas.
Methodology Short
Spatial Join
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Natural Systems
Indicator group
Earth Boundaries System
Attribute ID
NS_ESB_BIO_XXXX
Indicator Name
Biointegrity transgression
Units
Number of transgressions
Data Source
Rockström, J., Gupta, J., Qin, D. <i>et al.</i> Safe and just Earth system boundaries. <i>Nature</i> 619 , 102–111 (2023). https://doi.org/10.1038/s41586-023-06083-8
Abrams, Jesse (2022). Transgression map. figshare. Dataset. https://doi.org/10.6084/m9.figshare.20079200.v2
Indicator description
Number of biointegrity transgressions inside the urban center
Methodology
Zonal statistics (sum) of the biointegrity transgression layer.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Natural Systems
Indicator group
Earth Boundaries System
Attribute ID
NS_ESB_GWA_XXXX
Indicator Name
Groundwater transgression
Units
Number of transgressions
Data Source
Rockström, J., Gupta, J., Qin, D. <i>et al.</i> Safe and just Earth system boundaries. <i>Nature</i> 619 , 102–111 (2023). https://doi.org/10.1038/s41586-023-06083-8
Abrams, Jesse (2022). Transgression map. figshare. Dataset. https://doi.org/10.6084/m9.figshare.20079200.v2
Indicator description
Number of groundwater transgressions inside the urban center
Methodology
Zonal statistics (sum) of the groundwater transgression layer.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Natural Systems
Indicator group
Earth Boundaries System
Attribute ID
NS_ESB_NIT_XXXX
Indicator Name
Nitrogen transgression
Units
Number of transgressions
Data Source
Rockström, J., Gupta, J., Qin, D. <i>et al.</i> Safe and just Earth system boundaries. <i>Nature</i> 619 , 102–111 (2023). https://doi.org/10.1038/s41586-023-06083-8
Abrams, Jesse (2022). Transgression map. figshare. Dataset. https://doi.org/10.6084/m9.figshare.20079200.v2
Indicator description
Number of nitrogen transgressions inside the urban center
Methodology
Zonal statistics (sum) of the nitrogen transgression layer.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Natural Systems
Indicator group
Earth Boundaries System
Attribute ID
NS_ESB_PHO_XXXX
Indicator Name
Phosphorus transgression
Units
Number of transgressions
Data Source
Rockström, J., Gupta, J., Qin, D. <i>et al.</i> Safe and just Earth system boundaries. <i>Nature</i> 619 , 102–111 (2023). https://doi.org/10.1038/s41586-023-06083-8
Abrams, Jesse (2022). Transgression map. figshare. Dataset. https://doi.org/10.6084/m9.figshare.20079200.v2
Indicator description
Number of phosphorus transgressions inside the urban center
Methodology
Zonal statistics (sum) of the phosphorus transgression layer.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Natural Systems
Indicator group
Earth Boundaries System
Attribute ID
NS_ESB_P25_XXXX
Indicator Name
PM2.5 transgression
Units
Number of transgressions
Data Source
Rockström, J., Gupta, J., Qin, D. <i>et al.</i> Safe and just Earth system boundaries. <i>Nature</i> 619 , 102–111 (2023). https://doi.org/10.1038/s41586-023-06083-8
Abrams, Jesse (2022). Transgression map. figshare. Dataset. https://doi.org/10.6084/m9.figshare.20079200.v2
Indicator description
Number of PM2.5 transgressions inside the urban center
Methodology
Zonal statistics (sum) of the PM2.5 transgression layer.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Natural Systems
Indicator group
Earth Boundaries System
Attribute ID
NS_ESB_SLR_XXXX
Indicator Name
Sea level rise transgression
Units
Number of transgressions
Data Source
Rockström, J., Gupta, J., Qin, D. <i>et al.</i> Safe and just Earth system boundaries. <i>Nature</i> 619 , 102–111 (2023). https://doi.org/10.1038/s41586-023-06083-8
Abrams, Jesse (2022). Transgression map. figshare. Dataset. https://doi.org/10.6084/m9.figshare.20079200.v2
Indicator description
Number of sea level rise transgressions inside the urban center
Methodology
Zonal statistics (sum) of the sea level rise transgression layer.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Natural Systems
Indicator group
Earth Boundaries System
Attribute ID
NS_ESB_SWA_XXXX
Indicator Name
Surface water transgression
Units
Number of transgressions
Data Source
Rockström, J., Gupta, J., Qin, D. <i>et al.</i> Safe and just Earth system boundaries. <i>Nature</i> 619 , 102–111 (2023). https://doi.org/10.1038/s41586-023-06083-8
Abrams, Jesse (2022). Transgression map. figshare. Dataset. https://doi.org/10.6084/m9.figshare.20079200.v2
Indicator description
Number of surface water transgressions inside the urban center
Methodology
Zonal statistics (sum) of the surface water transgression layer.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Natural Systems
Indicator group
Earth Boundaries System
Attribute ID
NS_ESB_WET_XXXX
Indicator Name
Wet bulb temperature transgression
Units
Number of transgressions
Data Source
Rockström, J., Gupta, J., Qin, D. <i>et al.</i> Safe and just Earth system boundaries. <i>Nature</i> 619 , 102–111 (2023). https://doi.org/10.1038/s41586-023-06083-8
Abrams, Jesse (2022). Transgression map. figshare. Dataset. https://doi.org/10.6084/m9.figshare.20079200.v2
Indicator description
Number of wet bulb transgressions inside the urban center
Methodology
Zonal statistics (sum) of the wet bulb transgression layer.
Methodology Short
Zonal statistics (sum)
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Natural Systems
Indicator group
Earth Boundaries System
Attribute ID
NS_ESB_MIN_XXXX
Indicator Name
Minimum number of total transgressions
Units
Number of transgressions
Data Source
Rockström, J., Gupta, J., Qin, D. <i>et al.</i> Safe and just Earth system boundaries. <i>Nature</i> 619 , 102–111 (2023). https://doi.org/10.1038/s41586-023-06083-8
Abrams, Jesse (2022). Transgression map. figshare. Dataset. https://doi.org/10.6084/m9.figshare.20079200.v2
Indicator description
Minimum number of total transgressions inside the urban center
Methodology
Zonal statistics (min) of the total transgression layer.
Methodology Short
Zonal statistics (min)
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Natural Systems
Indicator group
Earth Boundaries System
Attribute ID
NS_ESB_MAX_XXXX
Indicator Name
Maximum number of total transgressions
Units
Number of transgressions
Data Source
Rockström, J., Gupta, J., Qin, D. <i>et al.</i> Safe and just Earth system boundaries. <i>Nature</i> 619 , 102–111 (2023). https://doi.org/10.1038/s41586-023-06083-8
Abrams, Jesse (2022). Transgression map. figshare. Dataset. https://doi.org/10.6084/m9.figshare.20079200.v2
Indicator description
Maximum number of total transgressions inside the urban center
Methodology
Zonal statistics (max) of the total transgression layer.
Methodology Short
Zonal statistics (max)
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
SDG
Indicator group
Land Use efficiency
Attribute ID
SD_LUE_LPR_XXXX_YYYY
Indicator Name
Land Use Efficiency
Units
Dimensionless
Data Source
Melchiorri, M.; Pesaresi, M.; Florczyk, A.J.; Corbane, C.; Kemper, T. Principles and Applications of the Global Human Settlement Layer as Baseline for the Land Use Efficiency Indicator—SDG 11.3.1. ISPRS Int. J. Geo-Inf. 2019, 8, 96. https://doi.org/10.3390/ijgi8020096
SDG indicator metadata (Harmonized metadata template - format version 1.1), Metadata-11-03-01.pdf (un.org)
Indicator description
Land Use efficiency is the ratio between the Land Consumption Rate and the Population Growth Rate
Methodology
$LUE = \frac{\text{Land Consumption rate}}{\text{Population Growth rate}}$
Methodology Short
Definition formula
Temporal Coverage
1975-1980, 1980-1990, 1990-2000, 2000-2010, 2010-2020, 2020-2030, 1975-2020, 1990-2020, 2000-2020
Uncertainties & Best practices
Values less than -5 are indicated as '< -5' and values greater than 5 are indicated as '>5' in the dataset.

Indicator thematic area
SDG
Indicator group
Land Use Efficiency
Attribute ID
SD_LUE_LCR_XXXX_YYYY
Indicator Name
Land Consumption Rate
Units
Dimensionless
Data Source
Melchiorri, M.; Pesaresi, M.; Florczyk, A.J.; Corbane, C.; Kemper, T. Principles and Applications of the Global Human Settlement Layer as Baseline for the Land Use Efficiency Indicator—SDG 11.3.1. ISPRS Int. J. Geo-Inf. 2019, 8, 96. https://doi.org/10.3390/ijgi8020096
SDG indicator metadata (Harmonized metadata template - format version 1.1), Metadata-11-03-01.pdf (un.org)
Indicator description
Land Consumption Rate is defined as the share of the difference between total built-up in two years over the total built-up in the past year, divided by the difference between the two years. The total built-up is calculated as total built-up in the urban center.
Methodology
$LCR = \frac{BU_TOT_t - BU_TOT_{t-n}}{BU_TOT_{t-n}} \times \frac{1}{n}$
Methodology Short
Definition formula
Temporal Coverage
1975-1980, 1980-1990, 1990-2000, 2000-2010, 2010-2020, 2020-2030, 1975-2020, 1990-2020, 2000-2020
Uncertainties & Best practices
Values less than -5 are indicated as '< -5' and values greater than 5 are indicated as '>5' in the dataset.

Indicator thematic area
SDG
Indicator group
Land Use Efficiency
Attribute ID
SD_LUE_PGR_XXXX_YYYY
Indicator Name
Population Growth Rate
Units
Dimensionless
Data Source
Melchiorri, M.; Pesaresi, M.; Florczyk, A.J.; Corbane, C.; Kemper, T. Principles and Applications of the Global Human Settlement Layer as Baseline for the Land Use Efficiency Indicator—SDG 11.3.1. ISPRS Int. J. Geo-Inf. 2019, 8, 96. https://doi.org/10.3390/ijgi8020096
SDG indicator metadata (Harmonized metadata template - format version 1.1), Metadata-11-03-01.pdf (un.org)
Indicator description
Population Growth Rate is defined as logarithm of the fraction between of the total population in the current year and the total population in the past year, divided by the difference between the two years. The total population is calculated as total built-up in the urban center.
Methodology
$LCR = \ln\left(\frac{POP_TOT_t}{POP_TOT_{t-n}}\right) \times \frac{1}{n}$
Methodology Short
Definition formula
Temporal Coverage
1975-1980, 1980-1990, 1990-2000, 2000-2010, 2010-2020, 2020-2030, 1975-2020, 1990-2020, 2000-2020
Uncertainties & Best practices
Values less than -5 are indicated as '< -5' and values greater than 5 are indicated as '>5' in the dataset.

Indicator thematic area
SDG
Indicator group
Open Green Space
Attribute ID
SD_POP_HGR_XXXX
Indicator Name
Share of the Urban Centre population living in area of high greenness
Units
%
Data Source
United Nations Human Settlement Programme (UN-Habitat), Global Urban Indicators Database 2024
USGS Earth Resources Observation and Science (EROS) Center. (2021). Landsat 8 Level-2 Science Products. Landsat NDVI data from Landsat 8 mission. Retrieved from https://eros.usgs.gov/land-cover-land-use/landsat-8-level-2-science-products
USGS Earth Resources Observation and Science (EROS) Center. (2021). Landsat 8 Level-2 Science Products. Landsat NDVI data from Landsat 8 mission. Retrieved from https://eros.usgs.gov/land-cover-land-use/landsat-8-level-2-science-products
Schiavina M., Freire S., Carioli A., MacManus K. (2023): GHS-POP R2023A - GHS population grid multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/2ff68a52-5b5b-4a22-8f40-c41da8332cf , doi:10.2905/2FF68A52-5B5B-4A22-8F40-C41DA8332CFE
Pesaresi M., Politis P. (2023): GHS-BUILT-S R2023A - GHS built-up surface grid, derived from Sentinel2 composite and Landsat, multitemporal (1975-2030). European Commission, Joint Research Centre (JRC) PID: http://data.europa.eu/89h/9f06f36f-4b11-47ec-abb0-4f8b7b1d72ea , doi:10.2905/9F06F36F-4B11-47EC-ABBO-4F8B7B1D72EA
Indicator description (xxx max words)
Share of the Urban Centre population living in area of high greenness for the corresponding year
Methodology
Sequence of masking and zonal statistics. 300m buffering of the built-up domain, masking of the built-up and population grid with 3 years average NDVI (greater equal than threshold); zonal statistics of the population in the obtained mask; ratio between zonal statistics population and urban centre population. Thresholds for high greenness are estimated by UN-Habitat for agro-ecological-zones, from a sample of 700 cities. Agro-ecological zone values are obtained by averaging observations within the cities in each zone.
Methodology Short
Zonal Statistics (sum), ratio
Temporal Coverage
1985, 1990, 1995, 2000, 2005, 2010, 2015, 2020, 2025
Uncertainties & Best practices

Indicator thematic area
Socioeconomic
Indicator Group
GDP
Attribute ID
SC_SEC_GDP_XXXX
Indicator Name
Total Gross Domestic Product
Units
PPP
Data Source
Matti Kummu, Maria Kosonen, Sina Masoumzadeh Sayyar et al. Downscaled gridded global dataset for Gross Domestic Product (GDP) per capita PPP over 1990-2022, 29 April 2024, PREPRINT (Version 1) available at Research Square [https://doi.org/10.21203/rs.3.rs-4321741/v1]
Indicator description
Average of GDP value in the urban center
Methodology
Zonal average of the GDP layer pixel values inside the urban center.
Methodology Short
Zonal Statistics (average)
Temporal Coverage
1990, 1995, 2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices

Indicator thematic area
Socioeconomic
Indicator Group
Population distribution
Attribute ID
SC_SEC_PCF_XXXX
Indicator Name
Percentage of female population
Units
%
Data Source
Tatem, A. WorldPop, open data for spatial demography. <i>Sci Data</i> 4 , 170004 (2017). https://doi.org/10.1038/sdata.2017.4 https://www.worldpop.org/
Indicator description
Percentage of female population
Methodology
Percentage of the sum of female population data inside the urban center polygon by total population (sum of female and male)
Methodology Short
Ratio
Temporal Coverage
2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
Do not use this indicator to calculate number of inhabitants. Socioeconomic indicators based on WorldPop cannot be compared with population indicators based on GHSL data in statistical analysis.

Indicator thematic area
Socioeconomic
Indicator Group
Population distribution
Attribute ID
SC_SEC_PCM_XXXX
Indicator Name
Percentage of male population
Units
%
Data Source
Tatem, A. WorldPop, open data for spatial demography. <i>Sci Data</i> 4 , 170004 (2017). https://doi.org/10.1038/sdata.2017.4 https://www.worldpop.org/
Indicator description
Percentage of male population
Methodology
Percentage of the sum of male population data inside the urban center polygon by total population (sum of female and male)
Methodology Short
Ratio
Temporal Coverage
2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
Do not use this indicator to calculate number of inhabitants. Socioeconomic indicators based on WorldPop cannot be compared with population indicators based on GHSL data in statistical analysis.

Indicator thematic area
Socioeconomic
Indicator Group
Population distribution
Attribute ID
SC_SEC_PCY_XXXX
Indicator Name
Percentage of young population
Units
%
Data Source
Tatem, A. WorldPop, open data for spatial demography. <i>Sci Data</i> 4 , 170004 (2017). https://doi.org/10.1038/sdata.2017.4 https://www.worldpop.org/
Indicator description
Percentage of young population (0 to 14 years)
Methodology
Percentage of the sum of total population younger than 14 years old data inside the urban center polygon by total population (all years).
Methodology Short
Ratio
Temporal Coverage
2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
Do not use this indicator to calculate number of inhabitants. Socioeconomic indicators based on WorldPop cannot be compared with population indicators based on GHSL data in statistical analysis.

Indicator thematic area
Socioeconomic
Indicator Group
Population distribution
Attribute ID
SC_SEC_PCA_XXXX
Indicator Name
Percentage of adult population
Units
%
Data Source
Tatem, A. WorldPop, open data for spatial demography. <i>Sci Data</i> 4 , 170004 (2017). https://doi.org/10.1038/sdata.2017.4 https://www.worldpop.org/
Indicator description
Percentage of adult population (15 to 64 years)
Methodology
Percentage of the sum of total population older than 15 and younger than 64 years old data inside the urban center polygon by total population (all years).
Methodology Short
Ratio
Temporal Coverage
2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
Do not use this indicator to calculate number of inhabitants. Socioeconomic indicators based on WorldPop cannot be compared with population indicators based on GHSL data in statistical analysis.

Indicator thematic area
Socioeconomic
Indicator Group
Population distribution
Attribute ID
SC_SEC_PCO_XXXX
Indicator Name
Percentage of older population
Units
%
Data Source
Tatem, A. WorldPop, open data for spatial demography. <i>Sci Data</i> 4 , 170004 (2017). https://doi.org/10.1038/sdata.2017.4 https://www.worldpop.org/
Indicator description
Percentage of older population (more than 65 years)
Methodology
Percentage of the sum of total population older than 65 years old data inside the urban center polygon by total population (all years).
Methodology Short
Ratio
Temporal Coverage
2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
Do not use this indicator to calculate number of inhabitants. Socioeconomic indicators based on WorldPop cannot be compared with population indicators based on GHSL data in statistical analysis.

Indicator thematic area
Socioeconomic
Indicator Group
Human Development Index
Attribute ID
SC_SEC_HDI_XXXX
Indicator Name
Human Development Index
Units
Dimensionless
Data Source
<p>Data retrieved from the Subnational HDI Database of the Global Data Lab, https://globaldatalab.org/shdi/, version v7.0.</p> <p>Smits, J. and Permanyer, I. The Subnational Human Development Database. Sci. Data. 6:190038 https://www.nature.com/articles/sdata201938 (2019).</p> <p>https://hdr.undp.org/data-center/human-development-index#/indicies/HDI</p>
Indicator description
Human Development Index at subnational level based on the UNDP's official HDI.
Methodology
Overlaying urban centers' polygons with the Subnational Human Development Database layer. Calculate the weighted average of the overlaid polygons for each UC falling into more than one subnational region.
Methodology Short
Zonal Statistics (weighted average)
Temporal Coverage
1990, 1995, 2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
The index is constant through the urban centers located in the same subnational division.

Indicator thematic area
Socioeconomic
Indicator Group
Gender Development Index
Attribute ID
SC_SEC_GDI_XXXX
Indicator Name
Gender Development Index
Units
Dimensionless
Data Source
<p>Data retrieved from the Subnational HDI Database of the Global Data Lab, https://globaldatalab.org/shdi/, version v7.0.</p> <p>Smits, J. and Permanyer, I. The Subnational Human Development Database. Sci. Data. 6:190038 https://www.nature.com/articles/sdata201938 (2019).</p> <p>https://hdr.undp.org/gender-development-index#/indicies/GDI</p>
Indicator description
Gender Development Index at subnational level based on the UNDP's official GDI.
Methodology
Overlaying urban centers' polygons with the Subnational Human Development Database layer. Calculate the weighted average of the overlaid polygons for each UC falling into more than one subnational region.
Methodology Short
Zonal Statistics (weighted average)
Temporal Coverage
1990, 1995, 2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
The index is constant through the urban centers located in the same subnational division.

Indicator thematic area
Socioeconomic
Indicator Group
Gender Development Index
Attribute ID
SC_SEC_GDF_XXXX
Indicator Name
Female Gender Development Index
Units
Dimensionless
Data Source
<p>Data retrieved from the Subnational HDI Database of the Global Data Lab, https://globaldatalab.org/shdi/, version v7.0.</p> <p>Smits, J. and Permanyer, I. The Subnational Human Development Database. Sci. Data. 6:190038 https://www.nature.com/articles/sdata201938 (2019).</p> <p>https://hdr.undp.org/gender-development-index#/indicies/GDI</p>
Indicator description
Female Gender Development Index at subnational level based on the UNDP's official GDI.
Methodology
Overlaying urban centers' polygons with the Subnational Human Development Database layer. Calculate the weighted average of the overlaid polygons for each UC falling into more than one subnational region.
Methodology Short
Zonal Statistics (weighted average)
Temporal Coverage
1990, 1995, 2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
The index is constant through the urban centers located in the same subnational division.

Indicator thematic area
Socioeconomic
Indicator Group
Gender Development Index
Attribute ID
SC_SEC_GDM_XXXX
Indicator Name
Male Gender Development Index
Units
Dimensionless
Data Source
<p>Data retrieved from the Subnational HDI Database of the Global Data Lab, https://globaldatalab.org/shdi/, version v7.0.</p> <p>Smits, J. and Permanyer, I. The Subnational Human Development Database. Sci. Data. 6:190038 https://www.nature.com/articles/sdata201938 (2019).</p> <p>https://hdr.undp.org/gender-development-index#/indicies/GDI</p>
Indicator description
Male Gender Development Index at subnational level based on the UNDP's official GDI.
Methodology
Overlaying urban centers' polygons with the Subnational Human Development Database layer. Calculate the weighted average of the overlaid polygons for each UC falling into more than one subnational region.
Methodology Short
Zonal Statistics (weighted average)
Temporal Coverage
1990, 1995, 2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
The index is constant through the urban centers located in the same subnational division.

Indicator thematic area
Socioeconomic
Indicator Group
Life Expectancy
Attribute ID
SC_SECLET_XXXX
Indicator Name
Life Expectancy
Units
Number of years
Data Source
<p>Data retrieved from the Subnational HDI Database of the Global Data Lab, https://globaldatalab.org/shdi/, version v7.0.</p> <p>Smits, J. and Permanyer, I. The Subnational Human Development Database. Sci. Data. 6:190038 https://www.nature.com/articles/sdata201938 (2019).</p>
Indicator description
Number of years newborn children would live if subject to the mortality risks prevailing for the cross-section of population at the time of their birth.
Methodology
Overlaying urban centers' polygons with the Subnational Human Development Database layer. Calculate the weighted average of the overlaid polygons for each UC falling into more than one subnational region.
Methodology Short
Zonal Statistics (weighted average)
Temporal Coverage
1990, 1995, 2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
The index is constant through the urban centers located in the same subnational division.

Indicator thematic area
Socioeconomic
Indicator Group
Life Expectancy
Attribute ID
SC_SEC_LEF_XXXX
Indicator Name
Female Life Expectancy
Units
Number of years
Data Source
<p>Data retrieved from the Subnational HDI Database of the Global Data Lab, https://globaldatalab.org/shdi/, version v7.0.</p> <p>Smits, J. and Permanyer, I. The Subnational Human Development Database. Sci. Data. 6:190038 https://www.nature.com/articles/sdata201938 (2019).</p>
Indicator description
Number of years female newborn children would live if subject to the mortality risks prevailing for the cross-section of population at the time of their birth.
Methodology
Overlaying urban centers' polygons with the Subnational Human Development Database layer. Calculate the weighted average of the overlaid polygons for each UC falling into more than one subnational region.
Methodology Short
Zonal Statistics (weighted average)
Temporal Coverage
1990, 1995, 2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
The index is constant through the urban centers located in the same subnational division.

Indicator thematic area
Socioeconomic
Indicator Group
Life Expectancy
Attribute ID
SC_SEC_LEM_XXXX
Indicator Name
Male Life Expectancy
Units
Number of years
Data Source
<p>Data retrieved from the Subnational HDI Database of the Global Data Lab, https://globaldatalab.org/shdi/, version v7.0.</p> <p>Smits, J. and Permanyer, I. The Subnational Human Development Database. Sci. Data. 6:190038 https://www.nature.com/articles/sdata201938 (2019).</p>
Indicator description
Number of years male newborn children would live if subject to the mortality risks prevailing for the cross-section of population at the time of their birth.
Methodology
Overlaying urban centers' polygons with the Subnational Human Development Database layer. Calculate the weighted average of the overlaid polygons for each UC falling into more than one subnational region.
Methodology Short
Zonal Statistics (weighted average)
Temporal Coverage
1990, 1995, 2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
The index is constant through the urban centers located in the same subnational division.

Indicator thematic area
Socioeconomic
Indicator Group
Expected years of Schooling
Attribute ID
SC_SEC_SET_XXXX
Indicator Name
Expected years of Schooling
Units
Number of years
Data Source
<p>Data retrieved from the Subnational HDI Database of the Global Data Lab, https://globaldatalab.org/shdi/, version v7.0.</p> <p>Smits, J. and Permanyer, I. The Subnational Human Development Database. Sci. Data. 6:190038 https://www.nature.com/articles/sdata201938 (2019).</p>
Indicator description
Number of years of schooling a child of school entrance age can expect to receive, if prevailing patterns of age-specific enrolment rates persist throughout the child's schooling life.
Methodology
Overlaying urban centers' polygons with the Subnational Human Development Database layer. Calculate the weighted average of the overlaid polygons for each UC falling into more than one subnational region.
Methodology Short
Zonal Statistics (weighted average)
Temporal Coverage
1990, 1995, 2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
The index is constant through the urban centers located in the same subnational division.

Indicator thematic area
Socioeconomic
Indicator Group
Expected years of Schooling
Attribute ID
SC_SEC_SEF_XXXX
Indicator Name
Female Expected years of Schooling
Units
Number of years
Data Source
<p>Data retrieved from the Subnational HDI Database of the Global Data Lab, https://globaldatalab.org/shdi/, version v7.0.</p> <p>Smits, J. and Permanyer, I. The Subnational Human Development Database. Sci. Data. 6:190038 https://www.nature.com/articles/sdata201938 (2019).</p>
Indicator description
Number of years of schooling a female child of school entrance age can expect to receive, if prevailing patterns of age-specific enrolment rates persist throughout the child's schooling life.
Methodology
Overlaying urban centers' polygons with the Subnational Human Development Database layer. Calculate the weighted average of the overlaid polygons for each UC falling into more than one subnational region.
Methodology Short
Zonal Statistics (weighted average)
Temporal Coverage
1990, 1995, 2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
The index is constant through the urban centers located in the same subnational division.

Indicator thematic area
Socioeconomic
Indicator Group
Expected years of Schooling
Attribute ID
SC_SEC_SEM_XXXX
Indicator Name
Male Expected years of Schooling
Units
Number of years
Data Source
<p>Data retrieved from the Subnational HDI Database of the Global Data Lab, https://globaldatalab.org/shdi/, version v7.0.</p> <p>Smits, J. and Permanyer, I. The Subnational Human Development Database. Sci. Data. 6:190038 https://www.nature.com/articles/sdata201938 (2019).</p>
Indicator description
Number of years of schooling a male child of school entrance age can expect to receive, if prevailing patterns of age-specific enrolment rates persist throughout the child's schooling life.
Methodology
Overlaying urban centers' polygons with the Subnational Human Development Database layer. Calculate the weighted average of the overlaid polygons for each UC falling into more than one subnational region.
Methodology Short
Zonal Statistics (weighted average)
Temporal Coverage
1990, 1995, 2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
The index is constant through the urban centers located in the same subnational division.

Indicator thematic area
Socioeconomic
Indicator Group
Mean years of Schooling
Attribute ID
SC_SEC_SYT_XXXX
Indicator Name
Mean years of Schooling of adults aged 25+
Units
Number of years
Data Source
<p>Data retrieved from the Subnational HDI Database of the Global Data Lab, https://globaldatalab.org/shdi/, version v7.0.</p> <p>Smits, J. and Permanyer, I. The Subnational Human Development Database. Sci. Data. 6:190038 https://www.nature.com/articles/sdata201938 (2019).</p>
Indicator description
Average years of schooling for the population aged 25 or more years.
Methodology
Overlaying urban centers' polygons with the Subnational Human Development Database layer. Calculate the weighted average of the overlaid polygons for each UC falling into more than one subnational region.
Methodology Short
Zonal Statistics (weighted average)
Temporal Coverage
1990, 1995, 2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
The index is constant through the urban centers located in the same subnational division.

Indicator thematic area
Socioeconomic
Indicator Group
Mean years of Schooling
Attribute ID
SC_SEC_SYF_XXXX
Indicator Name
Mean years of Schooling of female adults aged 25+
Units
Number of years
Data Source
<p>Data retrieved from the Subnational HDI Database of the Global Data Lab, https://globaldatalab.org/shdi/, version v7.0.</p> <p>Smits, J. and Permanyer, I. The Subnational Human Development Database. Sci. Data. 6:190038 https://www.nature.com/articles/sdata201938 (2019).</p>
Indicator description
Average years of schooling for the female population aged 25 or more years.
Methodology
Overlaying urban centers' polygons with the Subnational Human Development Database layer. Calculate the weighted average of the overlaid polygons for each UC falling into more than one subnational region.
Methodology Short
Zonal Statistics (weighted average)
Temporal Coverage
1990, 1995, 2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
The index is constant through the urban centers located in the same subnational division.

Indicator thematic area
Socioeconomic
Indicator Group
Mean years of Schooling
Attribute ID
SC_SEC_SYM_XXXX
Indicator Name
Mean years of Schooling of male adults aged 25+
Units
Number of years
Data Source
<p>Data retrieved from the Subnational HDI Database of the Global Data Lab, https://globaldatalab.org/shdi/, version v7.0.</p> <p>Smits, J. and Permanyer, I. The Subnational Human Development Database. Sci. Data. 6:190038 https://www.nature.com/articles/sdata201938 (2019).</p>
Indicator description
Average years of schooling for the male population aged 25 or more years.
Methodology
Overlaying urban centers' polygons with the Subnational Human Development Database layer. Calculate the weighted average of the overlaid polygons for each UC falling into more than one subnational region.
Methodology Short
Zonal Statistics (weighted average)
Temporal Coverage
1990, 1995, 2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
The index is constant through the urban centers located in the same subnational division.

Indicator thematic area
Socioeconomic
Indicator Group
Gross national income per capita
Attribute ID
SC_SEC_GIT_XXXX
Indicator Name
(Log of) Gross national income per capita
Units
US\$
Data Source
<p>Data retrieved from the Subnational HDI Database of the Global Data Lab, https://globaldatalab.org/shdi/, version v7.0.</p> <p>Smits, J. and Permanyer, I. The Subnational Human Development Database. Sci. Data. 6:190038 https://www.nature.com/articles/sdata201938 (2019).</p>
Indicator description
(Log of) Sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary <i>income</i> (compensation of employees and property <i>income</i>) from abroad.
Methodology
Overlaying urban centers' polygons with the Subnational Human Development Database layer. Calculate the weighted average of the overlaid polygons for each UC falling into more than one subnational region.
Methodology Short
Zonal Statistics (weighted average)
Temporal Coverage
1990, 1995, 2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
The index is constant through the urban centers located in the same subnational division.

Indicator thematic area
Socioeconomic
Indicator Group
Gross national income per capita
Attribute ID
SC_SEC_GIF_XXXX
Indicator Name
(Log of) Gross national income per female capita
Units
US\$
Data Source
<p>Data retrieved from the Subnational HDI Database of the Global Data Lab, https://globaldatalab.org/shdi/, version v7.0.</p> <p>Smits, J. and Permanyer, I. The Subnational Human Development Database. Sci. Data. 6:190038 https://www.nature.com/articles/sdata201938 (2019).</p>
Indicator description
(Log of) Sum of value added by female resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary <i>income</i> (compensation of employees and property <i>income</i>) from abroad.
Methodology
<p>Overlaying urban centers' polygons with the Subnational Human Development Database layer.</p> <p>Calculate the weighted average of the overlaid polygons for each UC falling into more than one subnational region.</p>
Methodology Short
Zonal Statistics (weighted average)
Temporal Coverage
1990, 1995, 2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
The index is constant through the urban centers located in the same subnational division.

Indicator thematic area
Socioeconomic
Indicator Group
Gross national income per capita
Attribute ID
SC_SEC_GIM_XXXX
Indicator Name
(Log of) Gross national income per male capita
Units
US\$
Data Source
<p>Data retrieved from the Subnational HDI Database of the Global Data Lab, https://globaldatalab.org/shdi/, version v7.0.</p> <p>Smits, J. and Permanyer, I. The Subnational Human Development Database. Sci. Data. 6:190038 https://www.nature.com/articles/sdata201938 (2019).</p>
Indicator description
(Log of) Sum of value added by male resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary <i>income</i> (compensation of employees and property <i>income</i>) from abroad.
Methodology
Overlaying urban centers' polygons with the Subnational Human Development Database layer. Calculate the weighted average of the overlaid polygons for each UC falling into more than one subnational region.
Methodology Short
Zonal Statistics (weighted average)
Temporal Coverage
1990, 1995, 2000, 2005, 2010, 2015, 2020
Uncertainties & Best practices
The index is constant through the urban centers located in the same subnational division.

Indicator thematic area
Socioeconomic
Indicator Group
Connectivity
Attribute ID
SC_CON_DSF_XXXX
Indicator Name
Average download speed fixed
Units
Mbps
Data Source
Speedtest by Ookla
Indicator description
Average download speed for the fixed network.
Methodology
Zonal Statistics (weighted average)
Methodology short
Zonal Statistics (weighted average)
Temporal Coverage
2020, 2021, 2022, 2023
Uncertainties & Best practices
Network performance is measured via users through the Speedtest app. Therefore, information is missing for areas where no users is actively testing the network performance.

Indicator thematic area
Socioeconomic
Indicator Group
Connectivity
Attribute ID
SC_CON_DSF_XXXX
Indicator Name
Average download speed mobile
Units
Mbps
Data Source
Speedtest by Ookla
Indicator description
Average download speed for the mobile network.
Methodology
Zonal Statistics (weighted average)
Methodology short
Zonal Statistics (weighted average)
Temporal Coverage
2020 -2023
Uncertainties & Best practices
Network performance is measured via users through the Speedtest app. Therefore, information is missing for areas where no users is actively testing the network performance.

Indicator thematic area
Socioeconomic
Indicator Group
Connectivity
Attribute ID
SC_CON_USF_XXXX
Indicator Name
Average upload speed fixed
Units
Mbps
Data Source
Speedtest by Ookla
Indicator description
Average upload speed for the fixed network.
Methodology
Zonal Statistics (weighted average)
Methodology short
Zonal Statistics (weighted average)
Temporal Coverage
2020, 2021, 2022, 2023
Uncertainties & Best practices
Network performance is measured via users through the Speedtest app. Therefore, information is missing for areas where no users is actively testing the network performance.

Indicator thematic area
Socioeconomic
Indicator Group
Connectivity
Attribute ID
SC_CON_USM_XXXX
Indicator Name
Average upload speed mobile
Units
Mbps
Data Source
Speedtest by Ookla
Indicator description
Average upload speed for the mobile network.
Methodology
Zonal Statistics (weighted average)
Methodology short
Zonal Statistics (weighted average)
Temporal Coverage
2020, 2021, 2022, 2023
Uncertainties & Best practices
Network performance is measured via users through the Speedtest app. Therefore, information is missing for areas where no users is actively testing the network performance.

Indicator thematic area
Socioeconomic
Indicator Group
Connectivity
Attribute ID
SC_CON_ALF_XXXX
Indicator Name
Average latency fixed
Units
ms
Data Source
Speedtest by Ookla
Indicator description
Average latency for the fixed network.
Methodology
Zonal Statistics (weighted average)
Methodology short
Zonal Statistics (weighted average)
Temporal Coverage
2020, 2021, 2022, 2023
Uncertainties & Best practices
Network performance is measured via users through the Speedtest app. Therefore, information is missing for areas where no users is actively testing the network performance.

Indicator thematic area
Socioeconomic
Indicator Group
Connectivity
Attribute ID
SC_CON_ALM_XXXX
Indicator Name
Average latency mobile
Units
ms
Data Source
Speedtest by Ookla
Indicator description
Average latency for the mobile network.
Methodology
Zonal Statistics (weighted average)
Methodology short
Zonal Statistics (weighted average)
Temporal Coverage
2020, 2021, 2022, 2023
Uncertainties & Best practices
Network performance is measured via users through the Speedtest app. Therefore, information is missing for areas where no users is actively testing the network performance.

Indicator thematic area
Socioeconomic
Indicator Group
Connectivity
Attribute ID
SC_CON_NDF_XXXX
Indicator Name
Number of unique devices fixed
Units
Number of devices
Data Source
Speedtest by Ookla
Indicator description
Number of devices measuring the fixed network performance through the app.
Methodology
Zonal Statistics (sum)
Methodology short
Zonal Statistics (sum)
Temporal Coverage
2020, 2021, 2022, 2023
Uncertainties & Best practices
Network performance is measured via users through the Speedtest app. Therefore, information is missing for areas where no users is actively testing the network performance.

Indicator thematic area
Socioeconomic
Indicator Group
Connectivity
Attribute ID
SC_CON_NDM_XXXX
Indicator Name
Number of unique devices mobile
Units
Number of devices
Data Source
Speedtest by Ookla
Indicator description
Number of devices measuring the mobile network performance through the app.
Methodology
Zonal Statistics (sum)
Methodology short
Zonal Statistics (sum)
Temporal Coverage
2020, 2021, 2022, 2023
Uncertainties & Best practices
Network performance is measured via users through the Speedtest app. Therefore, information is missing for areas where no users is actively testing the network performance.

Indicator thematic area
Water
Indicator group
Groundwater
Attribute ID
WA_GWR_GWB_XXXX
Indicator Name
Basin Type
Units
Categorical
Data Source
RICHTS, A., STRUCKMEIER, W. & ZAEPKE, M. (2011): WHYMAP and the Groundwater Resources of the World 1:25,000,000. In: Jones J. (Eds.): Sustaining Groundwater Resources. International Year of Planet Earth; Springer. doi: 10.1007/978-90-481-3426-7_10
Indicator description
Groundwater basin type
Methodology
Spatial join of the WHYMAP groundwater recharge type layer with the urban centers. If more than one aquifer unit overlays the urban center, the greater area covered by the join is considered to classify the aquifers of the urban centers.
Methodology Short
Spatial Join
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area														
Water														
Indicator group														
Groundwater														
Attribute ID														
WA_GWR_GWR_XXXX														
Indicator Name														
Groundwater recharge														
Units														
Categorical														
Data Source														
RICHTS, A., STRUCKMEIER, W. & ZAEPKE, M. (2011): WHYMAP and the Groundwater Resources of the World 1:25,000,000. In: Jones J. (Eds.): Sustaining Groundwater Resources. International Year of Planet Earth; Springer. doi: 10.1007/978-90-481-3426-7_10														
Indicator description														
Groundwater recharge classification														
Methodology														
Spatial join of the WHYMAP groundwater recharge type layer with the urban centers. If more than one aquifer unit overlays the urban center, the greater area covered by the join is considered to define the aquifers' recharge of the urban centers.														
Recharge is defined as:														
<table border="1"> <tr><td>Major Groundwater Basins</td></tr> <tr><td>very high (> 300)</td></tr> <tr><td>high (100 - 300)</td></tr> <tr><td>medium (20 - 100)</td></tr> <tr><td>low (2 - 20)</td></tr> <tr><td>very low (< 2)</td></tr> <tr><td>Complex Hydrogeological Structures</td></tr> <tr><td>very high (> 300)</td></tr> <tr><td>high (100 - 300)</td></tr> <tr><td>medium (20 - 100)</td></tr> <tr><td>low - very low (< 20)</td></tr> <tr><td>Local and Shallow Aquifers</td></tr> <tr><td>very high - high (> 100)</td></tr> <tr><td>medium - very low (< 100)</td></tr> </table>	Major Groundwater Basins	very high (> 300)	high (100 - 300)	medium (20 - 100)	low (2 - 20)	very low (< 2)	Complex Hydrogeological Structures	very high (> 300)	high (100 - 300)	medium (20 - 100)	low - very low (< 20)	Local and Shallow Aquifers	very high - high (> 100)	medium - very low (< 100)
Major Groundwater Basins														
very high (> 300)														
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medium (20 - 100)														
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very low (< 2)														
Complex Hydrogeological Structures														
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high (100 - 300)														
medium (20 - 100)														
low - very low (< 20)														
Local and Shallow Aquifers														
very high - high (> 100)														
medium - very low (< 100)														
Methodology Short														
Spatial Join														
Temporal Coverage														
2025														
Uncertainties & Best practices														

Indicator thematic area
Water
Indicator group
Groundwater
Attribute ID
WA_GWS_SAL_XXXX
Indicator Name
Aquifer Salinity
Units
Boolean (True/False)
Data Source
RICHTS, A., STRUCKMEIER, W. & ZAEPKE, M. (2011): WHYMAP and the Groundwater Resources of the World 1:25,000,000. In: Jones J. (Eds.): Sustaining Groundwater Resources. International Year of Planet Earth; Springer. doi: 10.1007/978-90-481-3426-7_10
Indicator description
Groundwater salinity
Methodology
Spatial join of the WHYMAP groundwater salinity layer with the urban centers. If the aquifer unit overlays the urban center the aquifers are flag as saline (1), else as not saline (0). Saline is considered when TDS > 5 g/l
Methodology Short
Spatial Join
Temporal Coverage
2025
Uncertainties & Best practices

Indicator thematic area
Water
Indicator group
Marine
Attribute ID
WA_MAR_SHT_XXXX
Indicator Name
Sea surface height above the sea trend
Units
mm/year
Data Source
Global Ocean Mean Sea Level trend map from Observations Reprocessing. E.U. Copernicus Marine Service Information (CMEMS). Marine Data Store (MDS). DOI: 10.48670/moi-00238 (Accessed on 26-July-2024)
Indicator description
Sea surface height above the sea trend
Methodology
Zonal statistics (average) of the Global Ocean Mean Sea Level trend layer (omi_climate_sl_globalRegional_trends) using a 10 km buffer around the coastal urban centers. The data shows the mean sea level trends for the time period 1993 to 2023.
Methodology Short
Zonal statistics (average)
Temporal Coverage
2023
Uncertainties & Best practices

Indicator thematic area
Water
Indicator group
Marine
Attribute ID
WA_MAR_STT_XXXX
Indicator Name
Sea surface temperature trend
Units
°C/year
Data Source
Global Ocean Sea Surface Temperature trend map from Observations Reprocessing. E.U. Copernicus Marine Service Information (CMEMS). Marine Data Store (MDS). DOI: 10.48670/moi-00243 (Accessed on 26-July-2024)
Indicator description
Sea surface temperature trend
Methodology
Zonal statistics (average) of the Global Ocean Sea Surface Temperature trend layer (global_omi_tempsal_sst_trend) using a 10 km buffer around the coastal urban centers. The data shows sea surface temperature trends for the time period 1993 to 2021.
Methodology Short
Zonal statistics (average)
Temporal Coverage
2021
Uncertainties & Best practices

Indicator thematic area
Water
Indicator group
Marine
Attribute ID
WA_MAR_SST_XXXX
Indicator Name
Sea surface temperature
Units
°C
Data Source
Global Ocean Physics Reanalysis. E.U. Copernicus Marine Service Information (CMEMS). Marine Data Store (MDS). DOI: 10.48670/moi-00021 (Accessed on 20-September-2024)
Indicator description
Sea surface temperature
Methodology
Zonal statistics (average) of the Global Ocean Physics Reanalysis layer (cmems_mod_glo_phy_myint_0.083deg_P1M-m) using a 10 km buffer around the coastal urban centers. The data shows the yearly averaged sea surface temperature (selecting the depth level 0 from the data) for each year.
Methodology Short
Zonal statistics (average)
Temporal Coverage
2021, 2022, 2023, 2024
Uncertainties & Best practices

Indicator thematic area
Water
Indicator group
Marine
Attribute ID
WA_MAR_W01_XXXX
Indicator Name
Wave significant height
Units
m
Data Source
Global Ocean Waves Reanalysis. E.U. Copernicus Marine Service Information (CMEMS). Marine Data Store (MDS). DOI: 10.48670/moi-00022 (Accessed on 29-September-2024)
Indicator description
Wave significant height (monthly averaged - January - data over the period 1993 to 2018)
Methodology
Zonal statistics (average) of the Global Ocean Waves Reanalysis layer (cmems_mod_glo_wav_my_0.2deg-climatology_P1M-m) using a 10 km buffer around the coastal urban centers. The data shows the monthly wave significant height averaged over the period 1993 to 2018 (included)
Methodology Short
Zonal statistics (average)
Temporal Coverage
2018
Uncertainties & Best practices

Indicator thematic area
Water
Indicator group
Marine
Attribute ID
WA_MAR_W02_XXXX
Indicator Name
Wave significant height
Units
m
Data Source
Global Ocean Waves Reanalysis. E.U. Copernicus Marine Service Information (CMEMS). Marine Data Store (MDS). DOI: 10.48670/moi-00022 (Accessed on 29-September-2024)
Indicator description
Wave significant height (monthly averaged – February - data over the period 1993 to 2018)
Methodology
Zonal statistics (average) of the Global Ocean Waves Reanalysis layer (cmems_mod_glo_wav_my_0.2deg-climatology_P1M-m) using a 10 km buffer around the coastal urban centers. The data shows the monthly wave significant height averaged over the period 1993 to 2018 (included)
Methodology Short
Zonal statistics (average)
Temporal Coverage
2018
Uncertainties & Best practices

Indicator thematic area
Water
Indicator group
Marine
Attribute ID
WA_MAR_W03_XXXX
Indicator Name
Wave significant height
Units
m
Data Source
Global Ocean Waves Reanalysis. E.U. Copernicus Marine Service Information (CMEMS). Marine Data Store (MDS). DOI: 10.48670/moi-00022 (Accessed on 29-September-2024)
Indicator description
Wave significant height (monthly averaged - March - data over the period 1993 to 2018)
Methodology
Zonal statistics (average) of the Global Ocean Waves Reanalysis layer (cmems_mod_glo_wav_my_0.2deg-climatology_P1M-m) using a 10 km buffer around the coastal urban centers. The data shows the monthly wave significant height averaged over the period 1993 to 2018 (included)
Methodology Short
Zonal statistics (average)
Temporal Coverage
2018
Uncertainties & Best practices

Indicator thematic area
Water
Indicator group
Marine
Attribute ID
WA_MAR_W04_XXXX
Indicator Name
Wave significant height
Units
m
Data Source
Global Ocean Waves Reanalysis. E.U. Copernicus Marine Service Information (CMEMS). Marine Data Store (MDS). DOI: 10.48670/moi-00022 (Accessed on 29-September-2024)
Indicator description
Wave significant height (monthly averaged - April - data over the period 1993 to 2018)
Methodology
Zonal statistics (average) of the Global Ocean Waves Reanalysis layer (cmems_mod_glo_wav_my_0.2deg-climatology_P1M-m) using a 10 km buffer around the coastal urban centers. The data shows the monthly wave significant height averaged over the period 1993 to 2018 (included)
Methodology Short
Zonal statistics (average)
Temporal Coverage
2018
Uncertainties & Best practices

Indicator thematic area
Water
Indicator group
Marine
Attribute ID
WA_MAR_W05_XXXX
Indicator Name
Wave significant height
Units
m
Data Source
Global Ocean Waves Reanalysis. E.U. Copernicus Marine Service Information (CMEMS). Marine Data Store (MDS). DOI: 10.48670/moi-00022 (Accessed on 29-September-2024)
Indicator description
Wave significant height (monthly averaged - May - data over the period 1993 to 2018)
Methodology
Zonal statistics (average) of the Global Ocean Waves Reanalysis layer (cmems_mod_glo_wav_my_0.2deg-climatology_P1M-m) using a 10 km buffer around the coastal urban centers. The data shows the monthly wave significant height averaged over the period 1993 to 2018 (included)
Methodology Short
Zonal statistics (average)
Temporal Coverage
2018
Uncertainties & Best practices

Indicator thematic area
Water
Indicator group
Marine
Attribute ID
WA_MAR_W06_XXXX
Indicator Name
Wave significant height
Units
m
Data Source
Global Ocean Waves Reanalysis. E.U. Copernicus Marine Service Information (CMEMS). Marine Data Store (MDS). DOI: 10.48670/moi-00022 (Accessed on 29-September-2024)
Indicator description
Wave significant height (monthly averaged - June - data over the period 1993 to 2018)
Methodology
Zonal statistics (average) of the Global Ocean Waves Reanalysis layer (cmems_mod_glo_wav_my_0.2deg-climatology_P1M-m) using a 10 km buffer around the coastal urban centers. The data shows the monthly wave significant height averaged over the period 1993 to 2018 (included)
Methodology Short
Zonal statistics (average)
Temporal Coverage
2018
Uncertainties & Best practices

Indicator thematic area
Water
Indicator group
Marine
Attribute ID
WA_MAR_W07_XXXX
Indicator Name
Wave significant height
Units
m
Data Source
Global Ocean Waves Reanalysis. E.U. Copernicus Marine Service Information (CMEMS). Marine Data Store (MDS). DOI: 10.48670/moi-00022 (Accessed on 29-September-2024)
Indicator description
Wave significant height (monthly averaged - July - data over the period 1993 to 2018)
Methodology
Zonal statistics (average) of the Global Ocean Waves Reanalysis layer (cmems_mod_glo_wav_my_0.2deg-climatology_P1M-m) using a 10 km buffer around the coastal urban centers. The data shows the monthly wave significant height averaged over the period 1993 to 2018 (included)
Methodology Short
Zonal statistics (average)
Temporal Coverage
2018
Uncertainties & Best practices

Indicator thematic area
Water
Indicator group
Marine
Attribute ID
WA_MAR_W08_XXXX
Indicator Name
Wave significant height
Units
m
Data Source
Global Ocean Waves Reanalysis. E.U. Copernicus Marine Service Information (CMEMS). Marine Data Store (MDS). DOI: 10.48670/moi-00022 (Accessed on 29-September-2024)
Indicator description
Wave significant height (monthly averaged - August - data over the period 1993 to 2018)
Methodology
Zonal statistics (average) of the Global Ocean Waves Reanalysis layer (cmems_mod_glo_wav_my_0.2deg-climatology_P1M-m) using a 10 km buffer around the coastal urban centers. The data shows the monthly wave significant height averaged over the period 1993 to 2018 (included)
Methodology Short
Zonal statistics (average)
Temporal Coverage
2018
Uncertainties & Best practices

Indicator thematic area
Water
Indicator group
Marine
Attribute ID
WA_MAR_W09_XXXX
Indicator Name
Wave significant height
Units
m
Data Source
Global Ocean Waves Reanalysis. E.U. Copernicus Marine Service Information (CMEMS). Marine Data Store (MDS). DOI: 10.48670/moi-00022 (Accessed on 29-September-2024)
Indicator description
Wave significant height (monthly averaged - September - data over the period 1993 to 2018)
Methodology
Zonal statistics (average) of the Global Ocean Waves Reanalysis layer (cmems_mod_glo_wav_my_0.2deg-climatology_P1M-m) using a 10 km buffer around the coastal urban centers. The data shows the monthly wave significant height averaged over the period 1993 to 2018 (included)
Methodology Short
Zonal statistics (average)
Temporal Coverage
2018
Uncertainties & Best practices

Indicator thematic area
Water
Indicator group
Marine
Attribute ID
WA_MAR_W10_XXXX
Indicator Name
Wave significant height
Units
m
Data Source
Global Ocean Waves Reanalysis. E.U. Copernicus Marine Service Information (CMEMS). Marine Data Store (MDS). DOI: 10.48670/moi-00022 (Accessed on 29-September-2024)
Indicator description
Wave significant height (monthly averaged - October - data over the period 1993 to 2018)
Methodology
Zonal statistics (average) of the Global Ocean Waves Reanalysis layer (cmems_mod_glo_wav_my_0.2deg-climatology_P1M-m) using a 10 km buffer around the coastal urban centers. The data shows the monthly wave significant height averaged over the period 1993 to 2018 (included)
Methodology Short
Zonal statistics (average)
Temporal Coverage
2018
Uncertainties & Best practices

Indicator thematic area
Water
Indicator group
Marine
Attribute ID
WA_MAR_W11_XXXX
Indicator Name
Wave significant height
Units
m
Data Source
Global Ocean Waves Reanalysis. E.U. Copernicus Marine Service Information (CMEMS). Marine Data Store (MDS). DOI: 10.48670/moi-00022 (Accessed on 29-September-2024)
Indicator description
Wave significant height (monthly averaged - November - data over the period 1993 to 2018)
Methodology
Zonal statistics (average) of the Global Ocean Waves Reanalysis layer (cmems_mod_glo_wav_my_0.2deg-climatology_P1M-m) using a 10 km buffer around the coastal urban centers. The data shows the monthly wave significant height averaged over the period 1993 to 2018 (included)
Methodology Short
Zonal statistics (average)
Temporal Coverage
2018
Uncertainties & Best practices

Indicator thematic area
Water
Indicator group
Marine
Attribute ID
WA_MAR_W12_XXXX
Indicator Name
Wave significant height
Units
m
Data Source
Global Ocean Waves Reanalysis. E.U. Copernicus Marine Service Information (CMEMS). Marine Data Store (MDS). DOI: 10.48670/moi-00022 (Accessed on 29-September-2024)
Indicator description
Wave significant height (monthly averaged - December - data over the period 1993 to 2018)
Methodology
Zonal statistics (average) of the Global Ocean Waves Reanalysis layer (cmems_mod_glo_wav_my_0.2deg-climatology_P1M-m) using a 10 km buffer around the coastal urban centers. The data shows the monthly wave significant height averaged over the period 1993 to 2018 (included)
Methodology Short
Zonal statistics (average)
Temporal Coverage
2018
Uncertainties & Best practices